

EXHIBIT H

1 OF 2



US006502096B1

(12) **United States Patent**
Siefert

(10) **Patent No.:** **US 6,502,096 B1**
(45) **Date of Patent:** **Dec. 31, 2002**

(54) **COMPUTERIZED ASSET MANAGEMENT SYSTEM**

(75) Inventor: **David M. Siefert**, Englewood, OH (US)

(73) Assignee: **NCR Corporation**, Dayton, OH (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/643,604**

(22) Filed: **Aug. 22, 2000**

Related U.S. Application Data

(63) Continuation of application No. 08/217,063, filed on Mar. 24, 1994.

(51) Int. Cl.⁷ **G06F 17/30**

(52) U.S. Cl. **707/10; 705/27; 707/104.1**

(58) Field of Search **705/26, 27; 707/10, 707/104.1**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,992,940 A *	2/1991	Dworkin	705/26
5,319,542 A *	6/1994	King, Jr. et al.	705/27
5,666,493 A *	9/1997	Wojcik et al.	705/26
5,694,551 A *	12/1997	Doyle et al.	705/26

OTHER PUBLICATIONS

"Harvest User's Manual" by Darren R. Hardy & Michael F. Schwartz, Version 1.0 Oct. 1994. Last revised on Nov. 3, 1994.

"Essence: A Resource Discovery System Based on Semantic File Indexing" by Darren R. Hardy & Michael F. Schwartz—University of Colorado, Boulder. 1993 Winter USENIX—Jan. 25–29, 1993 San Diego, CA pp. 361–374.

"Harvest Effective Use of Internet Information," The Harvest Information Discovery and Access System. No Date.
"The Harvest Information Discovery and Access System" by C. Mic Bowman, Peter B. Danzig, Darren R. Hardy, Ndi Manber & Michael F. Schwartz 1994. No Month.
Technical Discussion of the Harvest System. No Date.
Harvest Demonstration Brokers. Feb. 1996.

Instructions for the Harvest distribution: Version 1.3. No Date.

Frequently Asked Questions (and Answers) about Harvest Version 1.4 patchlevel 2. 13 pages. Feb. 1996.

(List continued on next page.)

Primary Examiner—Jack M. Choules

(74) *Attorney, Agent, or Firm*—Greg Welte

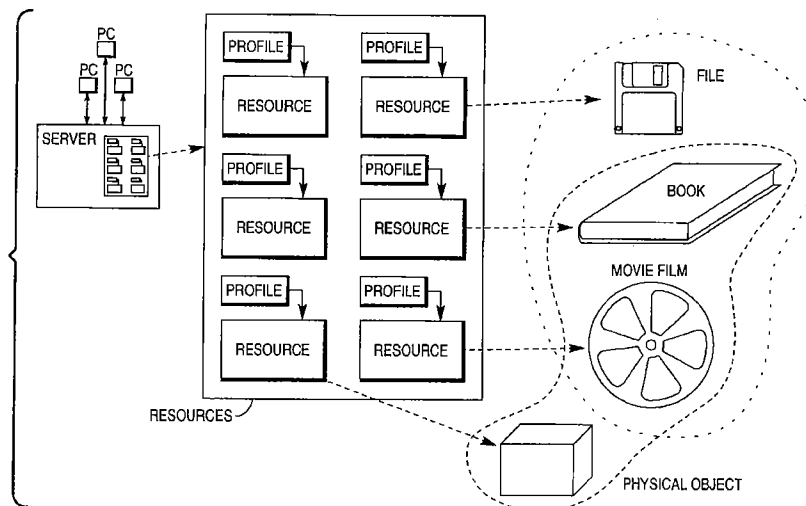
(57) **ABSTRACT**

The invention concerns a system for managing resources, which can take the form of (a) computer-compatible information, such as data files and programs, and (b) non-computer-compatible information, such as data contained on microfiche, and (c) physical objects. The resources are located at geographically diverse sites.

The invention contains a descriptive profile for each resource, and allows any user to search all profiles, and to search the profiles according to "fields" (a database term), such as by location of the resources, or by category of the resources. The user can order delivery of a selected resource, and the system causes delivery of the resource to be executed, irrespective of the form (eg, physical object) of the resource.

The invention allows a provider of a new resource to limit access to the resource, by identifying users who are authorized to obtain access to the resource. Non-authorized users cannot obtain access to the profiles of these resources.

9 Claims, 101 Drawing Sheets



US 6,502,096 B1

Page 2

OTHER PUBLICATIONS

- "Customized Information Extraction as A Basis for Resource Discovery," by Darren R. Hardy and Michael F. Schwartz, Department of Computer Science, University of Colorado, Boulder. Mar. 1994.
- "Debugging Autonomously Managed Distributed Systems & The Harvest Cache and Directory Replicator," by Peter B. Danzig Computer Science Department, University of Southern California, Nov. 2, 1994.
- Harvest: A Scalable, Customizable Discovery and Access System, IRTF-RD: Mic Bowman (co-PI, Transarc), Pater Danizig (co-PI, USC), Darren Hardy (PRA, U Colorado), Udi Manber (co-PI, U Arizona), Mike Schwartz (PI, U Colorado). 1994.
- "Internet Resource Discovery Services," by Katia Obraczka, Peter B. Danzig and Shih-Hao Li, University of Southern California, 8153 Computer, 26 (1993) Sep., No. 9, Los Alamitos, CA, US.
- "The Internet Gopher: A Distributed Server Information System," by Mark Cahill, University of Minnesota. No Date.
- "The Internet Gopher Protocol a distributed document search and retrieval protocol" Network Working Group, Request for Comments: 1436. 15 pages. Mar. 1993.
- Exploring the Power of the Internet Gopher, UIUCnet V6-1, Jan. 1993.
- "The Whole Internet" User's Guide & Catalog, Second Edition, by Ed Krol 384.648, 161 Kr 1994.
- Internet Passport, Northwestnet's Guide To Our World Online, Mar. 1993, Fourth Edition. pp. 259-344.
- "archie—An Electronic Directory Service for the Internet," by Alan Emtage, McGill University, Montreal, Canaca, Peter Deutsch, McGill University, Montreal, Canada, USENIX—Winter 1992.
- "Distributed Indexing A Scalable Mechanism for Distributed Information Retrieval," by Peter B. Danzig, Jongsuk Ahn, John Noll, Katia Obraczka, Computer Science Department, University of Southern California, Los Angeles, California. ACM SIGIR Conference 1991, pp. 220-229.
- "Internet Resource Discovery at the University of Colorado," by Michael F. Schwartz, Department of Computer Science, University of Colorado, Boulder Colorado, Oct. 1992.
- "Research Problems for Scalable Internet Resource Discovery," by C. Mic Bowman, Peter B. Danzig, Michael F. Schwartz, University of Colorado at Boulder, Technical Report CU-CS-643-93, Mar. 1993.
- "Fields of Files," by Ruth Halpern, LAN Technology, Sep. 1991, vol. 7, No. 9, pp. 48-62.
- "Test Drive—Inside the Document Den," by Ruth Halpern, Lan Magazine, Dec. 1992, vol. 7, No. 12, pp. 170-178.
- Automating Document Management, Office Administration and Automation, vol. XLVI, No. 4, Apr. 1985, pp. 51-86.
- "A Network Under Control," by Ed Perratore, Dec. 17, 1991, PC Magazine, pp. 287-330.
- "Evolution of the Internet Gopher," by Mark P. McCahill & Farhad X. Anklesaria, J. UCS, vol. 1, Issuc 4. 1995.
- Road Map to A/UX, Release 3.0 pp. 1-1 thru 1-21. No Date.
- Apple Inside Macintosh vol. III pp. III-9 through III-10 Nov. 1990.
- Brady "Inside the Apple Macintosh," by Jim Held & Pater Norton. pp. 590-591 © 1989.
- Macintosh Bible, second edition, edited by Arthur Naiman. pp. 34-44. No Date.
- Claris for Macintosh, ClarisWorks User's Guide. pp. 1-18 and 1-19 pp. 2-1 through 2-10. No Date.
- Guide to Macintosh System 7.5, Don Crabb. © 1994.
- Macintosh User's Guide for desktop Macintosh computers, Part I-IV. © 1993.
- "The System 7 Book", by Craig Danuloff, Second Edition for 7.0 & 7.1. © 1994.
- "Desktop Design Series," the Ventana Press. © 1993. No Date.
- An Overview of A/UX Release 3.0, Chapters 1 & 2. No Date.
- Mastering Windows 3.1, Robert Corvart. © 1992.
- What Is Microsoft Workgroup Add-On for Windows? No Date.
- Microsoft Windows User's Guide Operating System Version 3.1. 1994.
- Concepts, Novell NetWare 4, Network Computing Products. No Date.

* cited by examiner

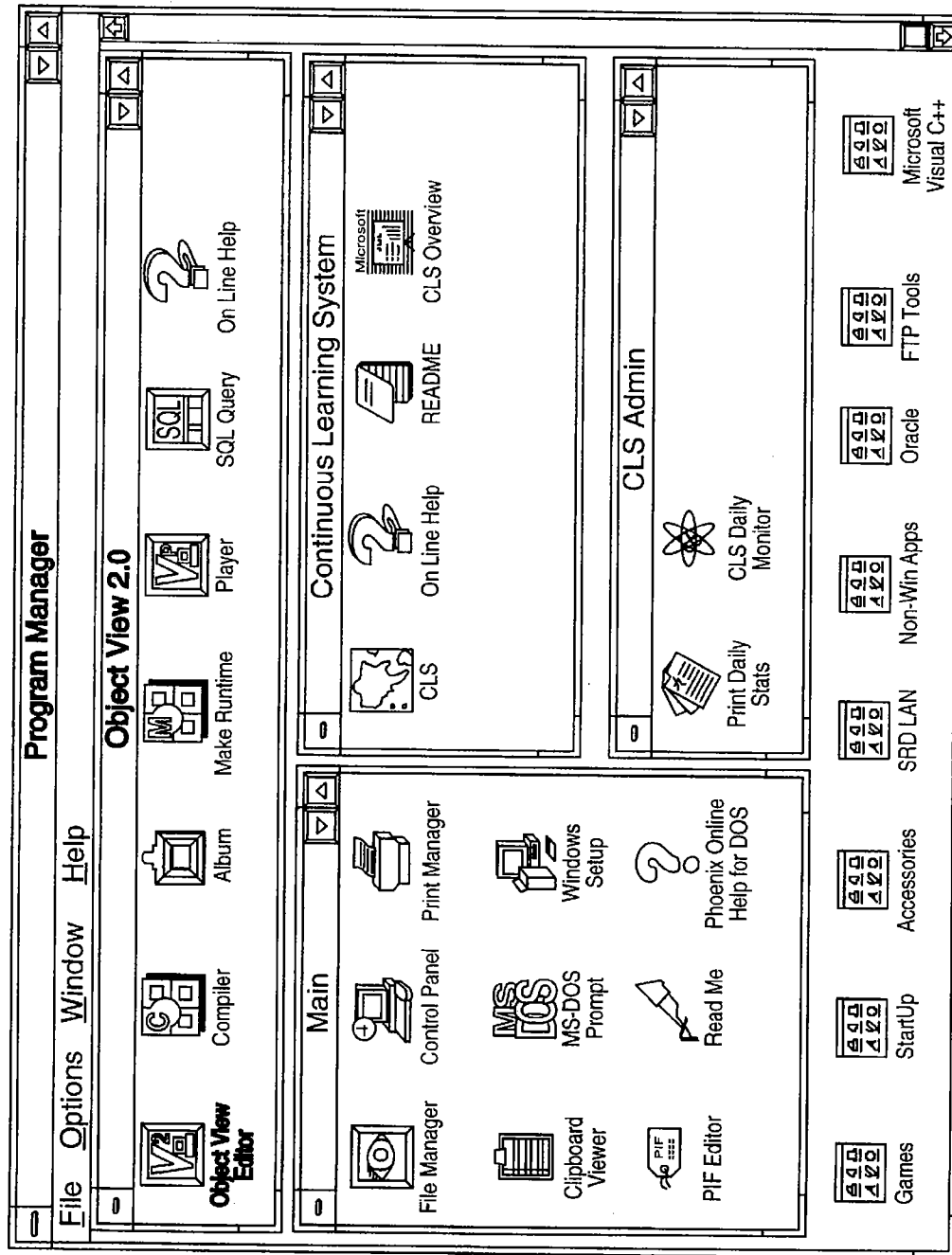
U.S. Patent

Dec. 31, 2002

Sheet 1 of 101

US 6,502,096 B1

FIG. 1

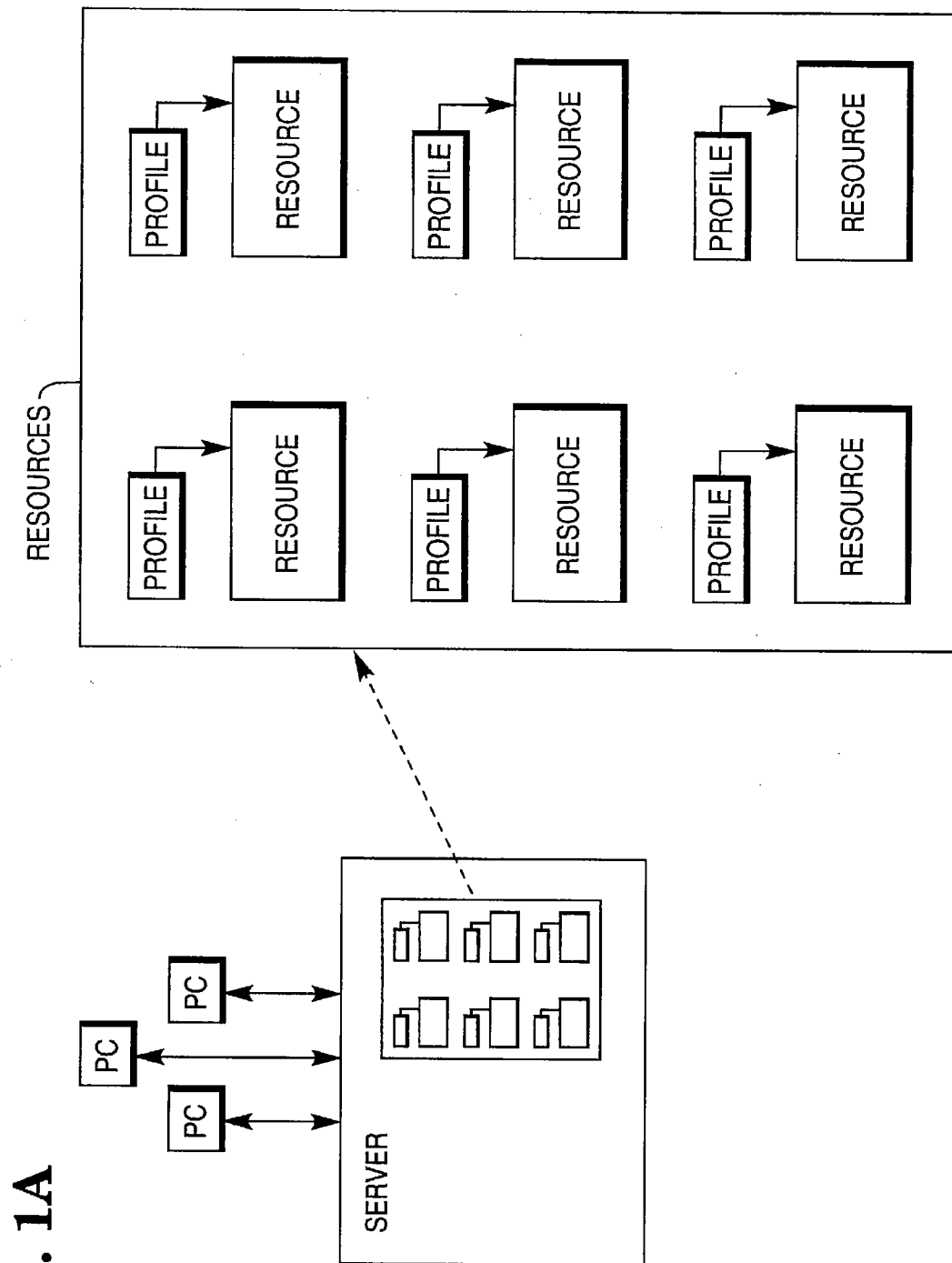


U.S. Patent

Dec. 31, 2002

Sheet 2 of 101

US 6,502,096 B1



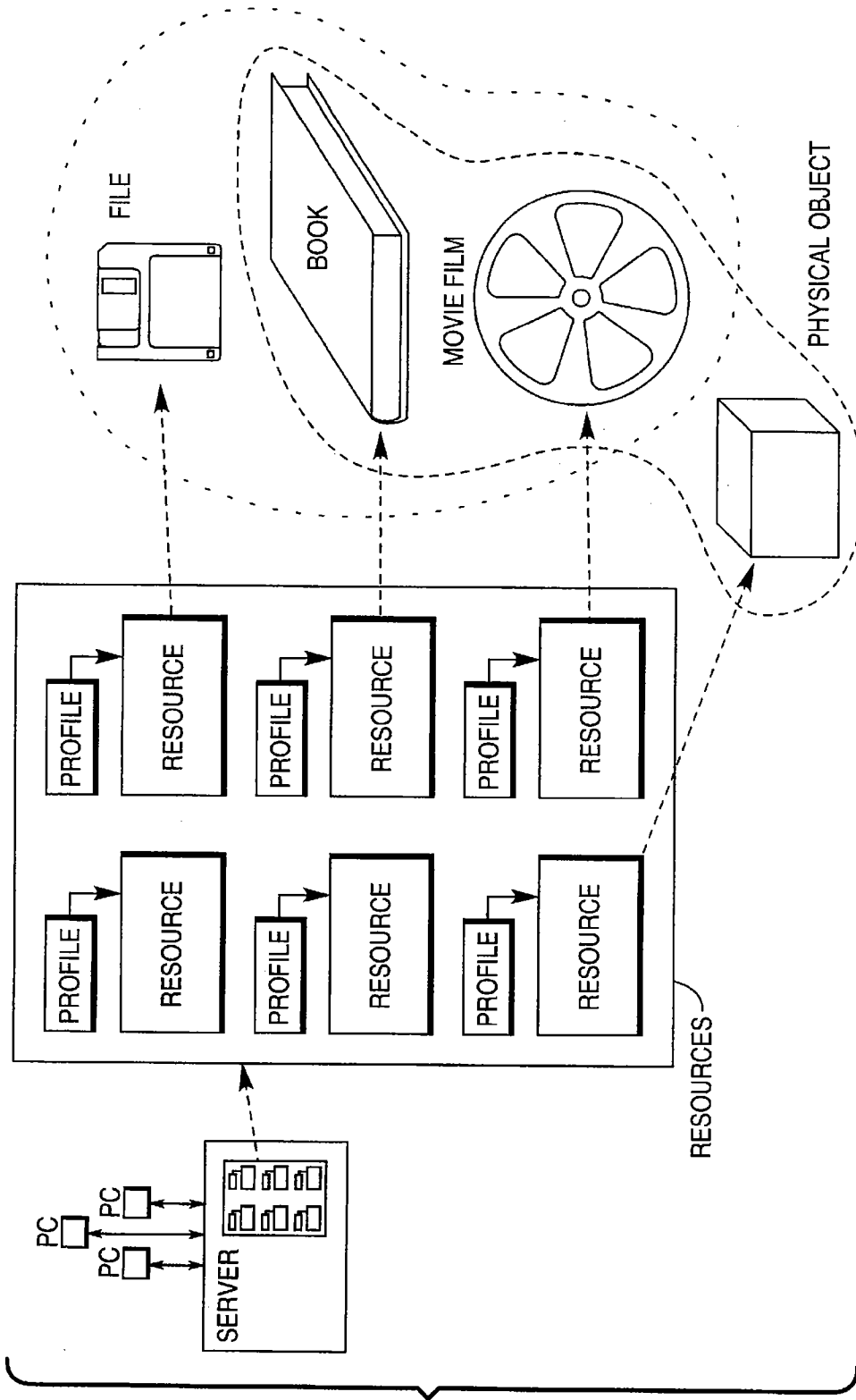
U.S. Patent

Dec. 31, 2002

Sheet 3 of 101

US 6,502,096 B1

FIG. 1B



U.S. Patent

Dec. 31, 2002

Sheet 4 of 101

US 6,502,096 B1

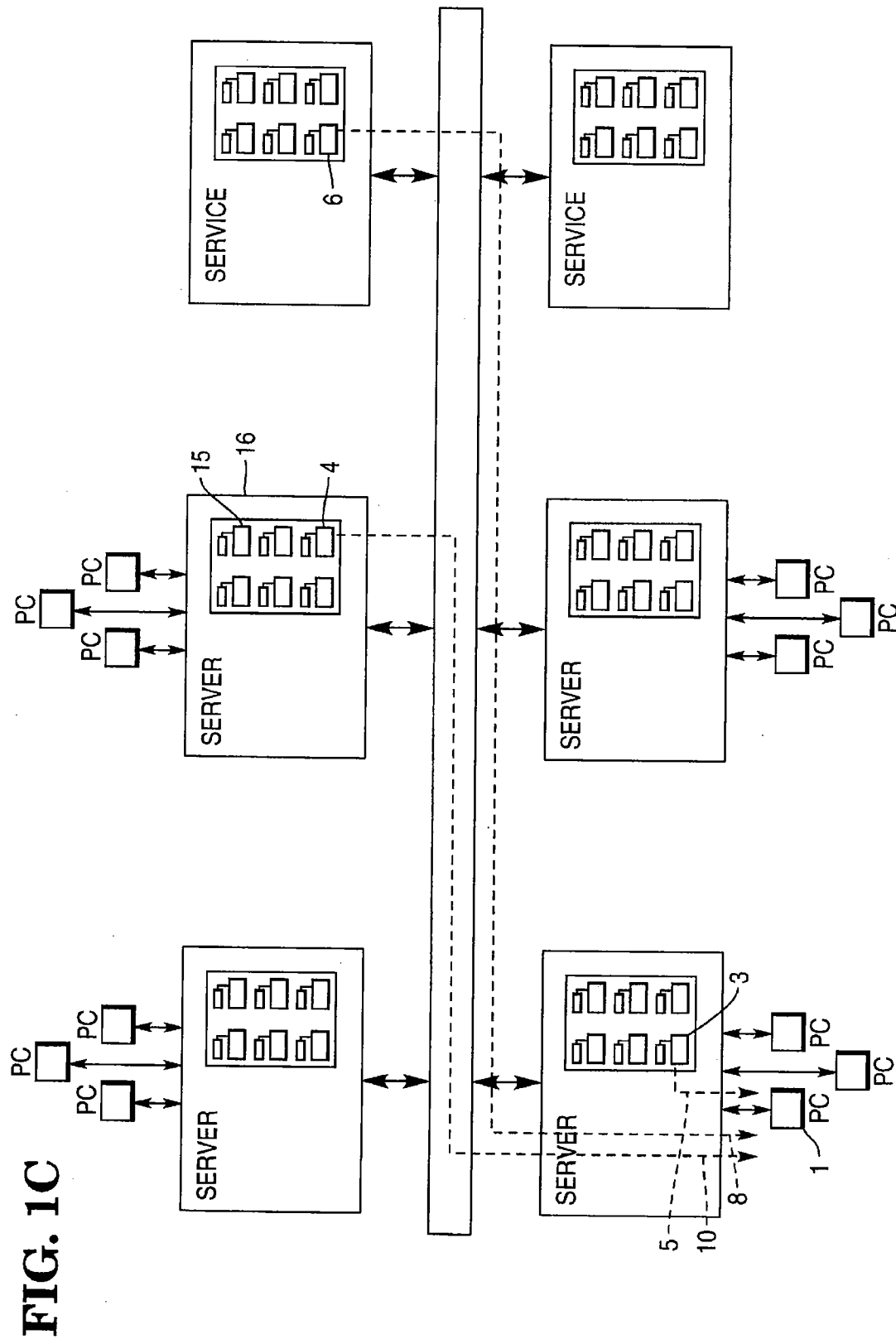
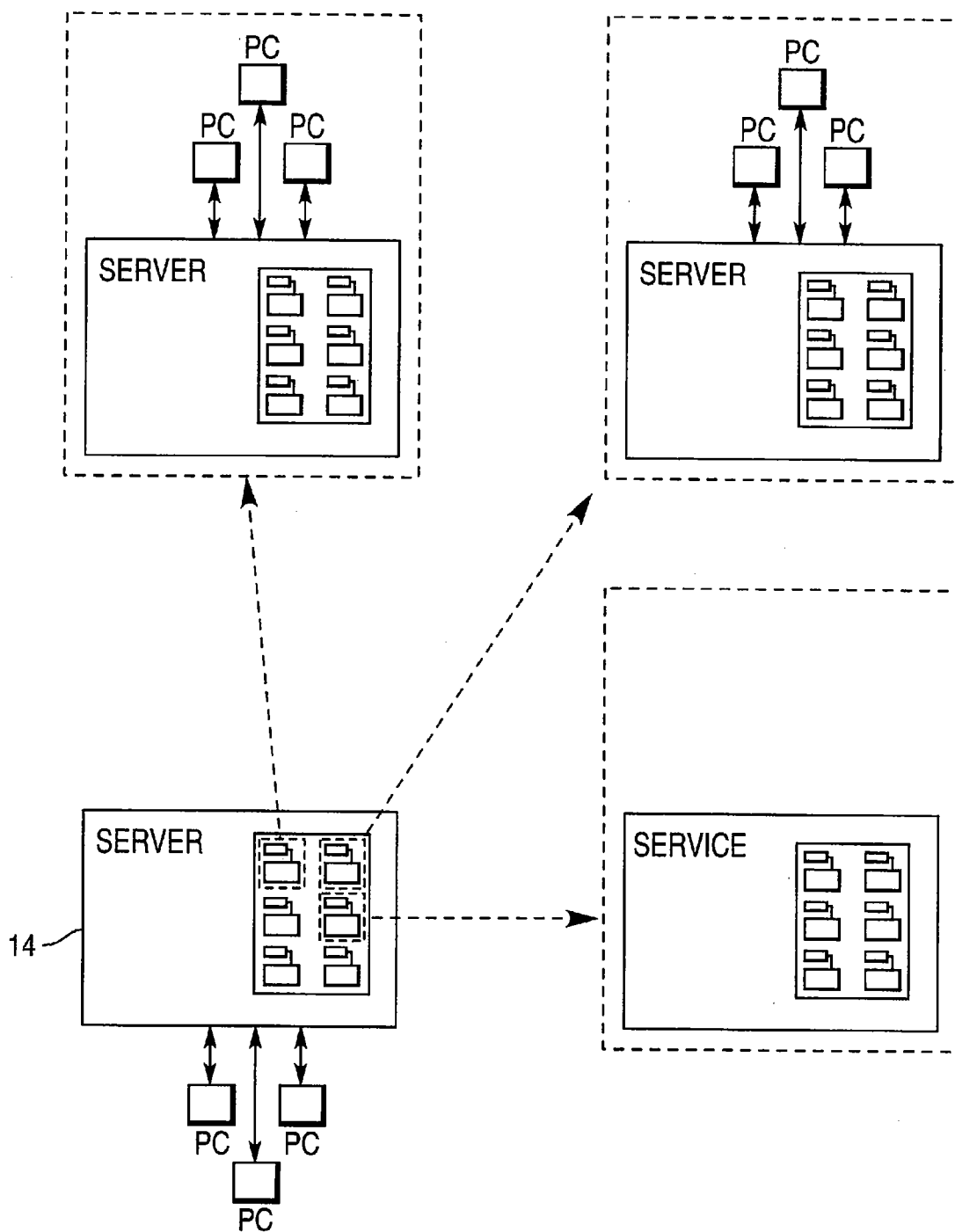


FIG. 1D

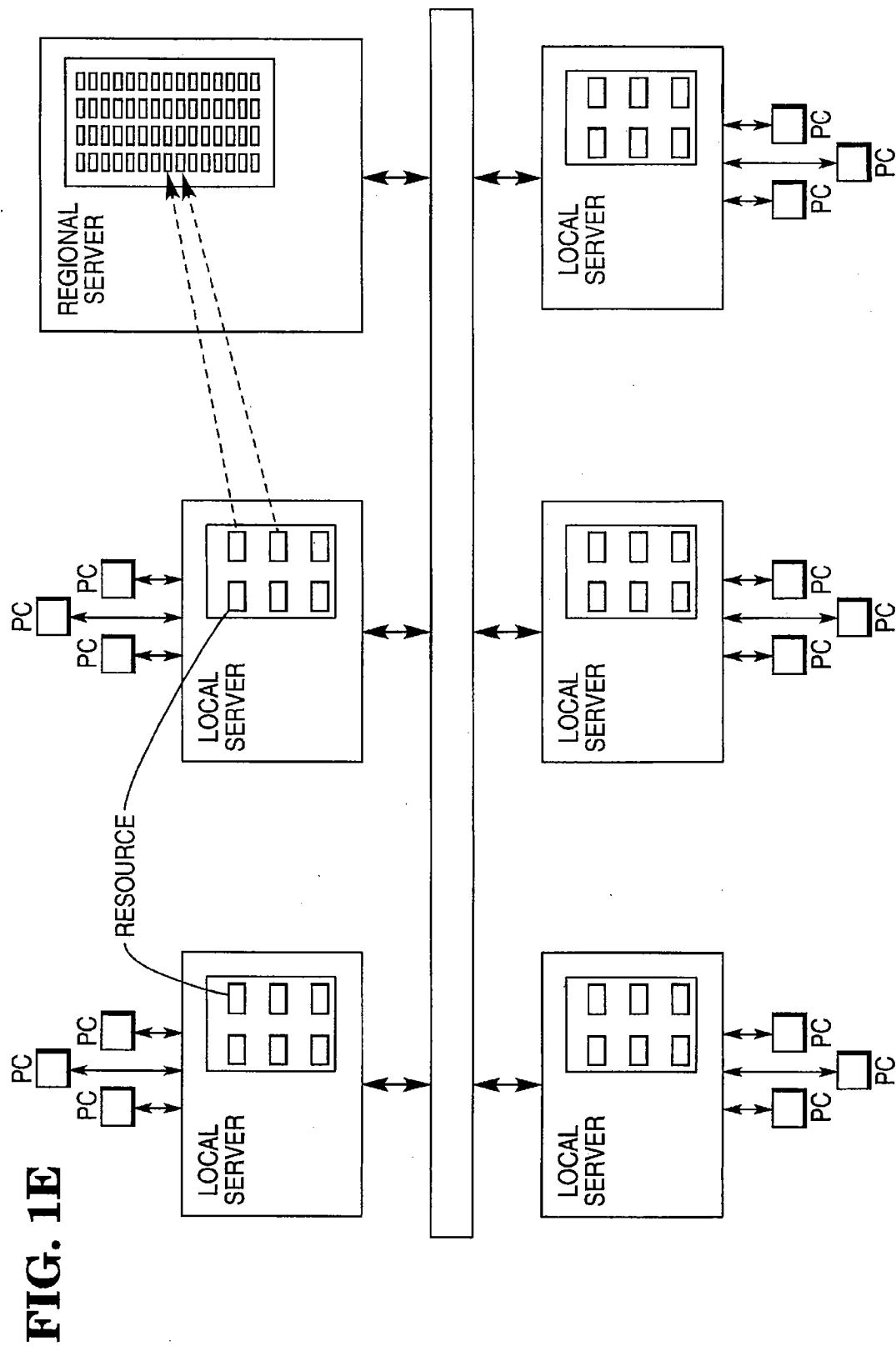


U.S. Patent

Dec. 31, 2002

Sheet 6 of 101

US 6,502,096 B1



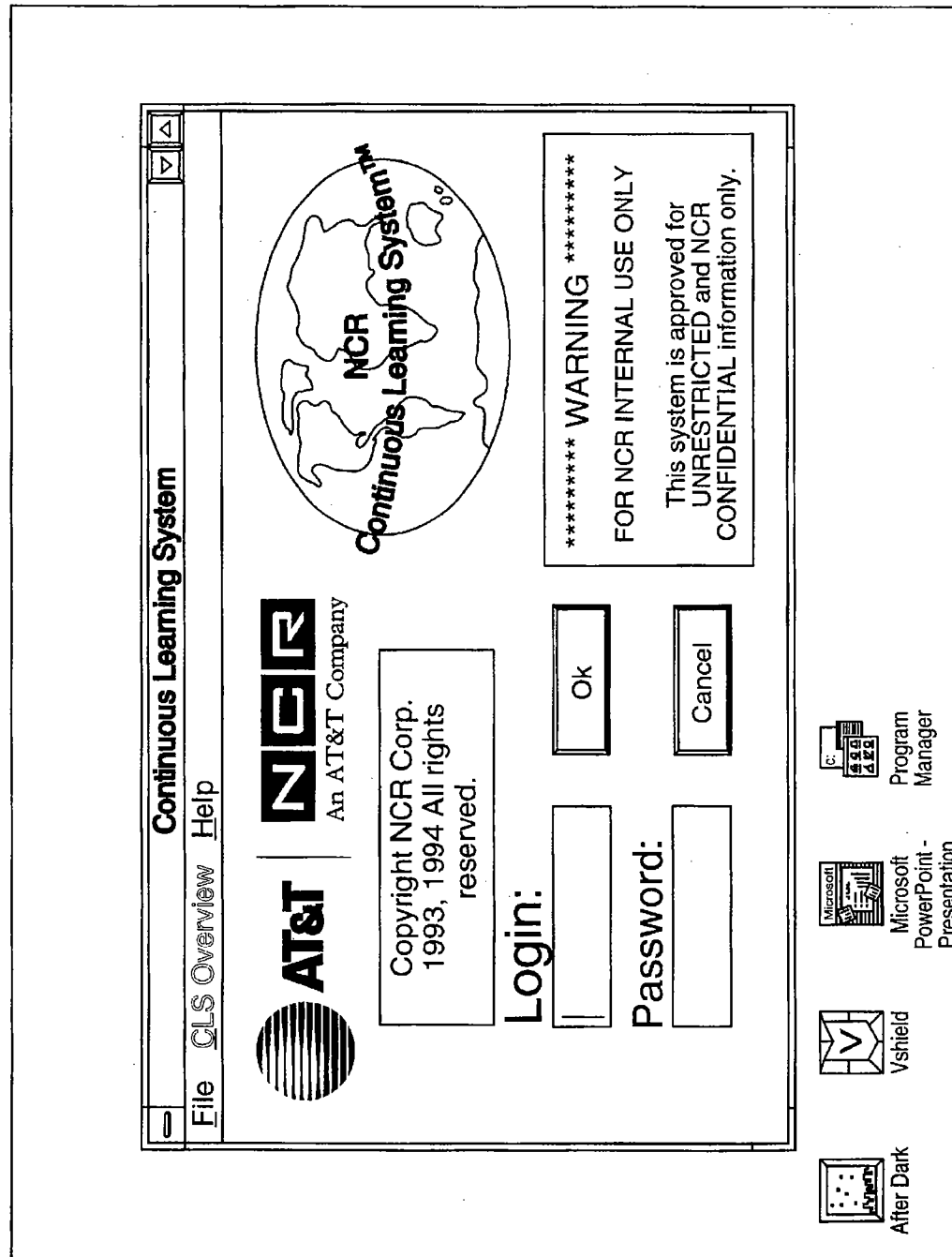
U.S. Patent

Dec. 31, 2002

Sheet 7 of 101

US 6,502,096 B1

FIG. 2



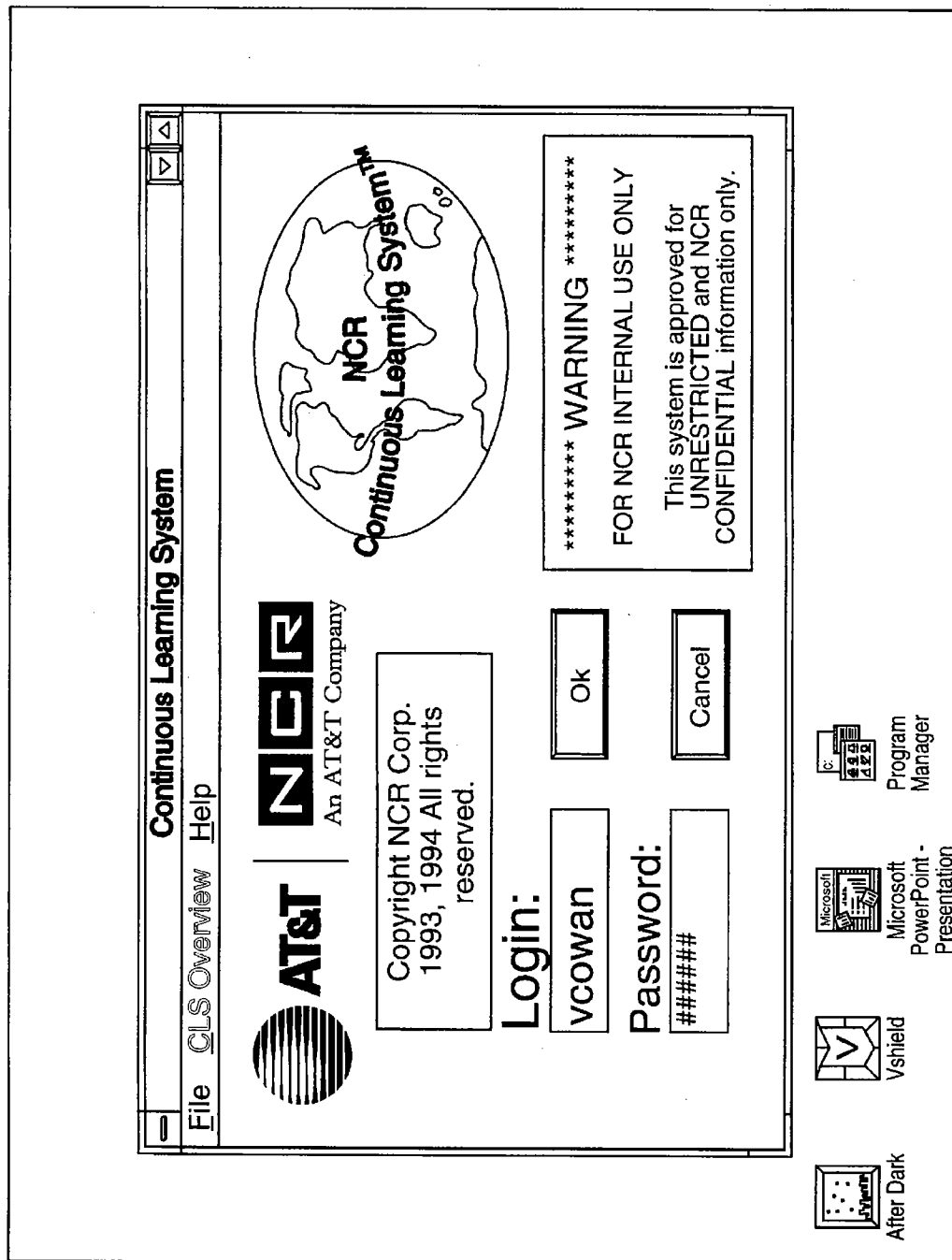
U.S. Patent

Dec. 31, 2002

Sheet 8 of 101

US 6,502,096 B1

FIG. 3



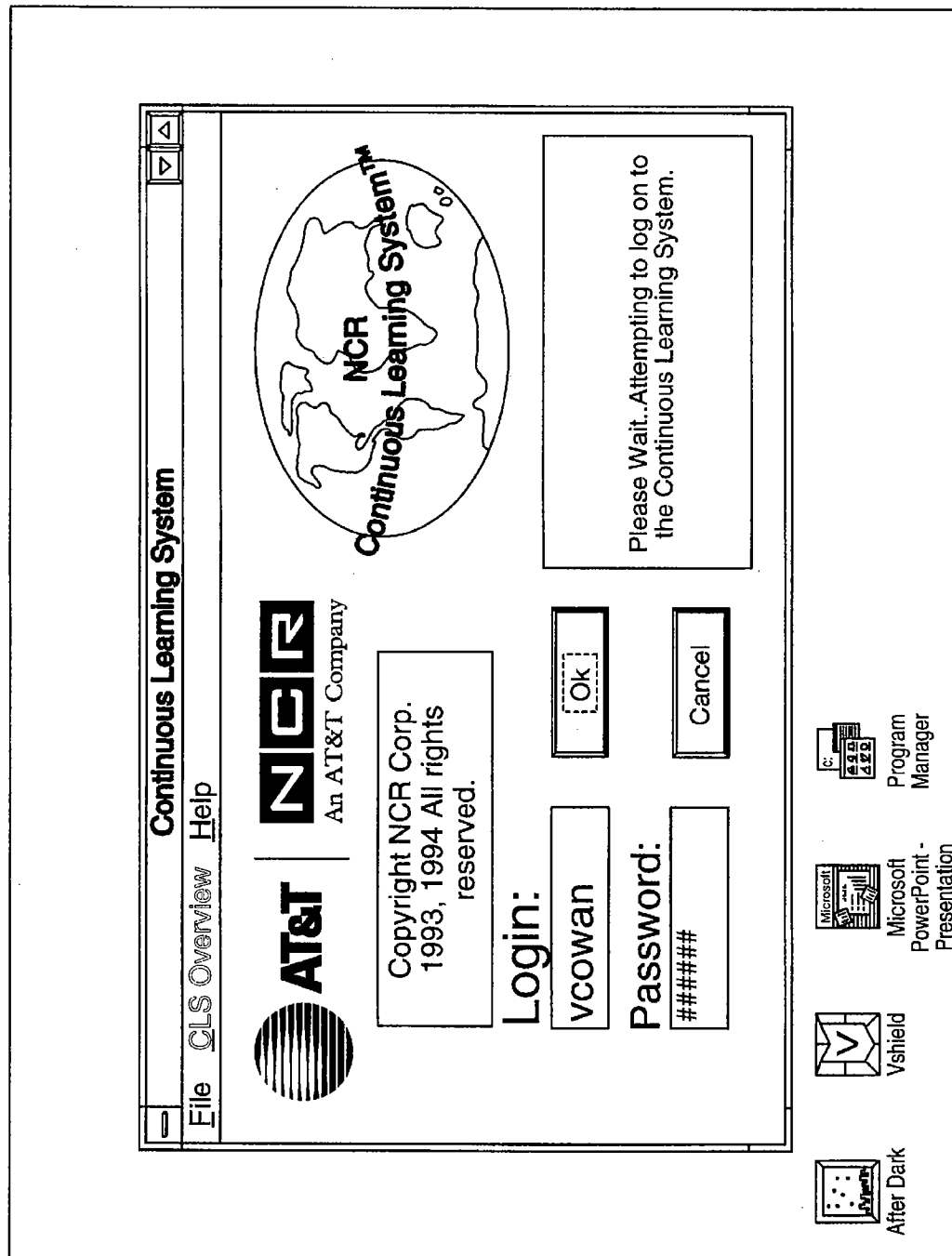
U.S. Patent

Dec. 31, 2002

Sheet 9 of 101

US 6,502,096 B1

FIG. 4



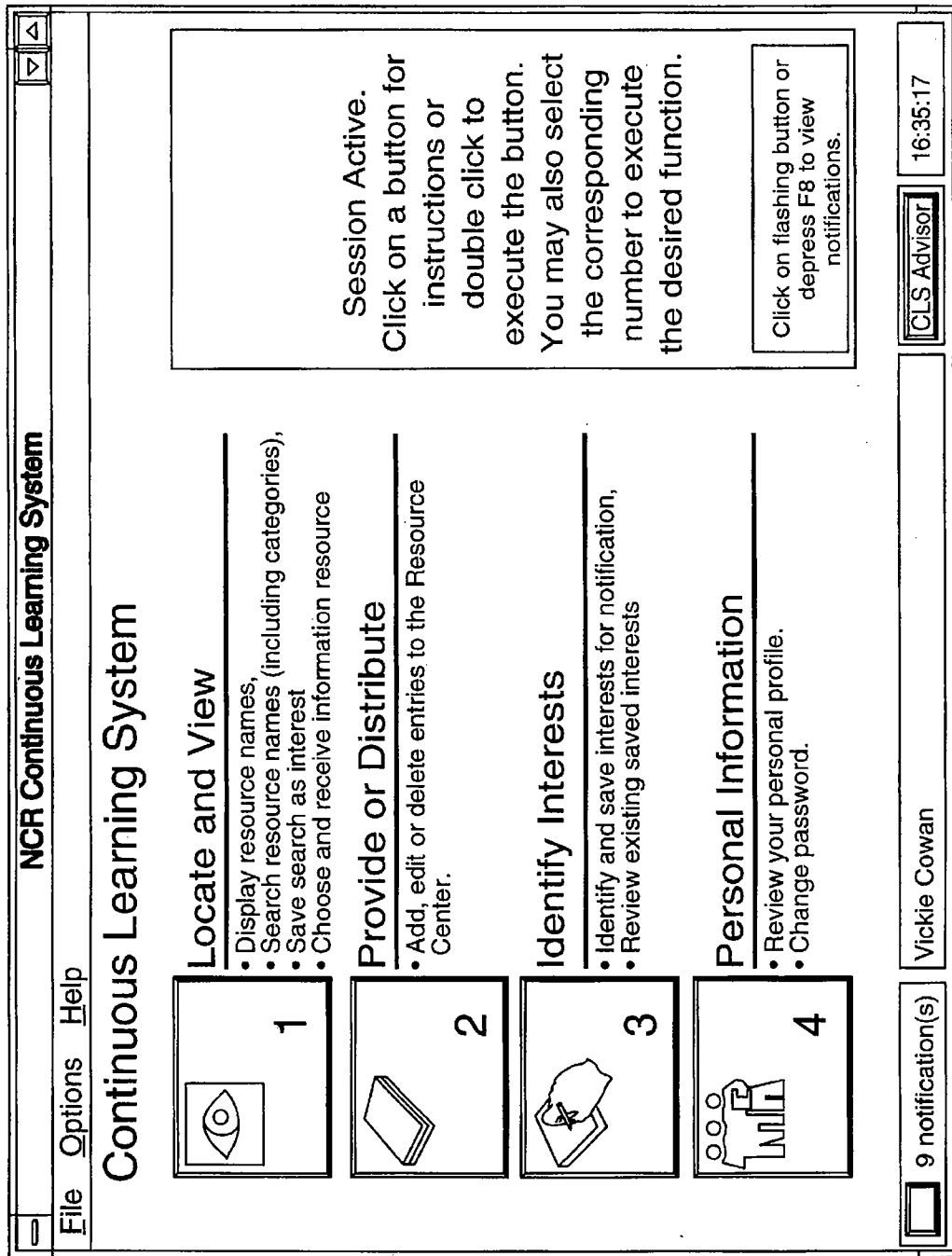
U.S. Patent

Dec. 31, 2002

Sheet 10 of 101

US 6,502,096 B1

FIG. 5

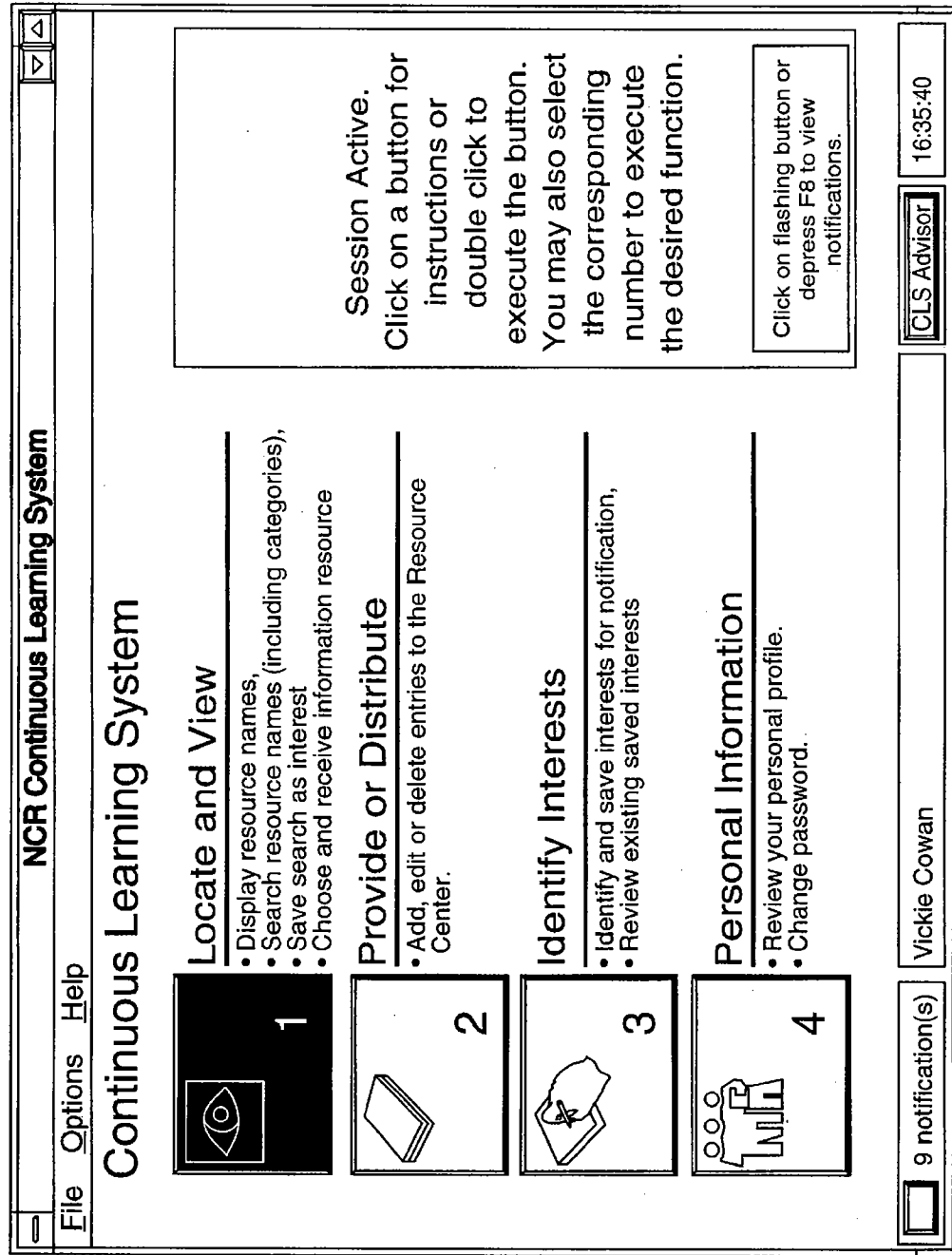


U.S. Patent

Dec. 31, 2002

Sheet 11 of 101

US 6,502,096 B1

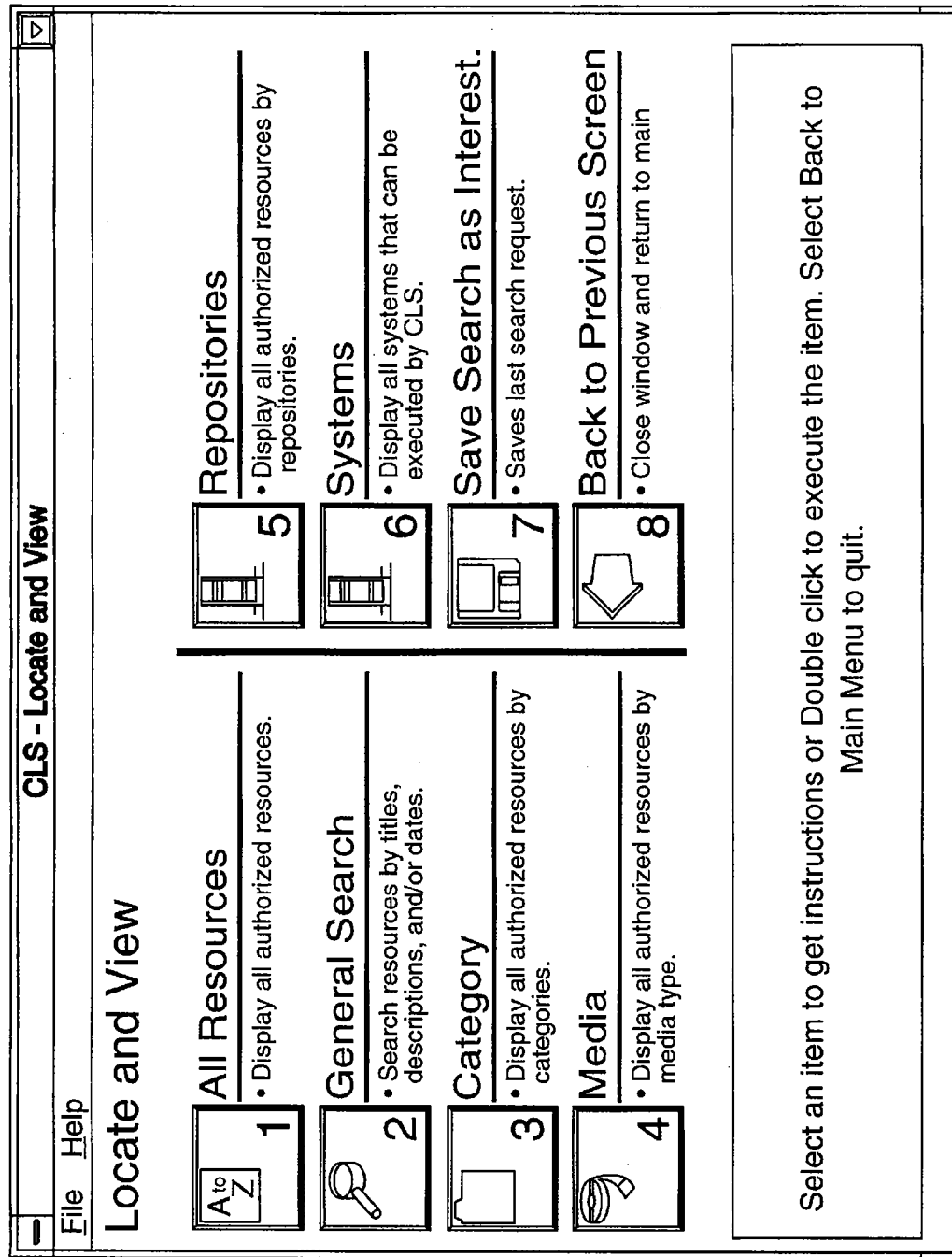
FIG. 6

U.S. Patent

Dec. 31, 2002

Sheet 12 of 101

US 6,502,096 B1

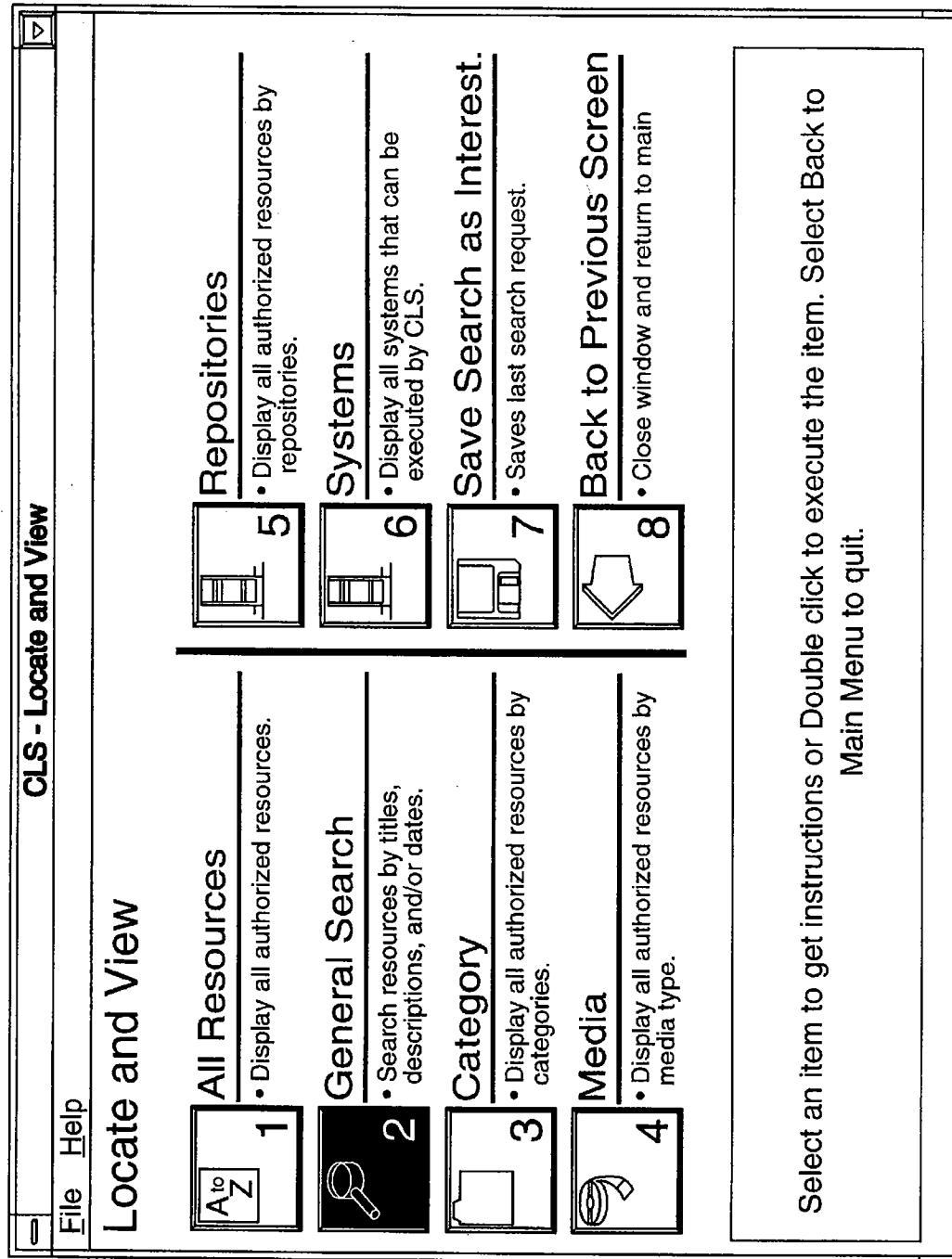
FIG. 7

U.S. Patent

Dec. 31, 2002

Sheet 13 of 101

US 6,502,096 B1

FIG. 8

U.S. Patent

Dec. 31, 2002

Sheet 14 of 101

US 6,502,096 B1

FIG. 9

CLS - Locate and View

File Help

Search

AND-@ OR-/ NOT-!

Title:

Description:

Date: / / dd/mm/yy

AND ON

Ok Cancel Clear Help

media

4

Display all authorized resources by media type.

BACK TO PREVIOUS SCREEN

Close window and return to main

Type in your search word, phrase or letters. Click on Search button and if there are any resources that match your search entry a list will be displayed or an error will be displayed. Press F1 for help.

U.S. Patent

Dec. 31, 2002

Sheet 15 of 101

US 6,502,096 B1

FIG. 10

CLS - Locate and View

File Help

Search

AND-@ OR-/ NOT-I

Title: unix

AND

Description:

OR

Date: / / dd/mm/yy

Ok Cancel Clear Help

media

4

BACK TO PREVIOUS SCREEN

8

• Display all authorized resources by media type.

• Close window and return to main

Type in your search word, phrase or letters. Click on Search button and if there are any resources that match your search entry a list will be displayed or an error will be displayed. Press F1 for help.

U.S. Patent

Dec. 31, 2002

Sheet 16 of 101

US 6,502,096 B1

FIG. 11

Catalog Search Results

File Help

Resource Profile...

7 entries returned.

	Media	Date/Time	Title
1	On Line	12/08/93 16:25	WWSM - NCR UNIX "Ready for Prime Time"
2	On Line	12/16/93 13:53	UNIX Reference Pak: Part 1 of 4 - Table of contents
3	On Line	12/16/93 14:02	UNIX Reference Pak: Part 2 of 4 - AT&T/NCRs Position on
4	On Line	12/16/93 14:05	UNIX Reference Pak: Part 3 of 4 - System Overview
5	On Line	12/16/93 14:09	UNIX Reference Pak: Part 4 of 4 - HP-UX vs. NCR SVR4 M
6	On Line	01/03/94 15:52	NCR UNIX SVR4 MP-RAS Rel 2.02 Release Letter
7	On Line	01/19/94 09:57	NCR UNIX Online Library

Retrieve Close

U.S. Patent

Dec. 31, 2002

Sheet 17 of 101

US 6,502,096 B1

FIG. 12

Catalog Search Results

File Help

Resource Profile...

7 entries returned.

	Media	Date/Time	Title
1	On Line	12/08/93 16:25	WWSM - NCR UNIX "Ready for Prime Time"
2	On Line	12/16/93 13:53	UNIX Reference Pak: Part 1 of 4 - Table of contents
3	On Line	12/16/93 14:02	UNIX Reference Pak: Part 2 of 4 - AT&T/NCRs Position on
4	On Line	12/16/93 14:05	UNIX Reference Pak: Part 3 of 4 - System Overview
5	On Line	12/16/93 14:09	UNIX Reference Pak: Part 4 of 4 - HP-UX vs. NCR SVR4 M
6	On Line	01/03/94 15:52	NCR UNIX SVR4 MP-RAS Rel 2.02 Release Letter
7	On Line	01/19/94 09:57	NCR UNIX Online Library

Retrieve Close

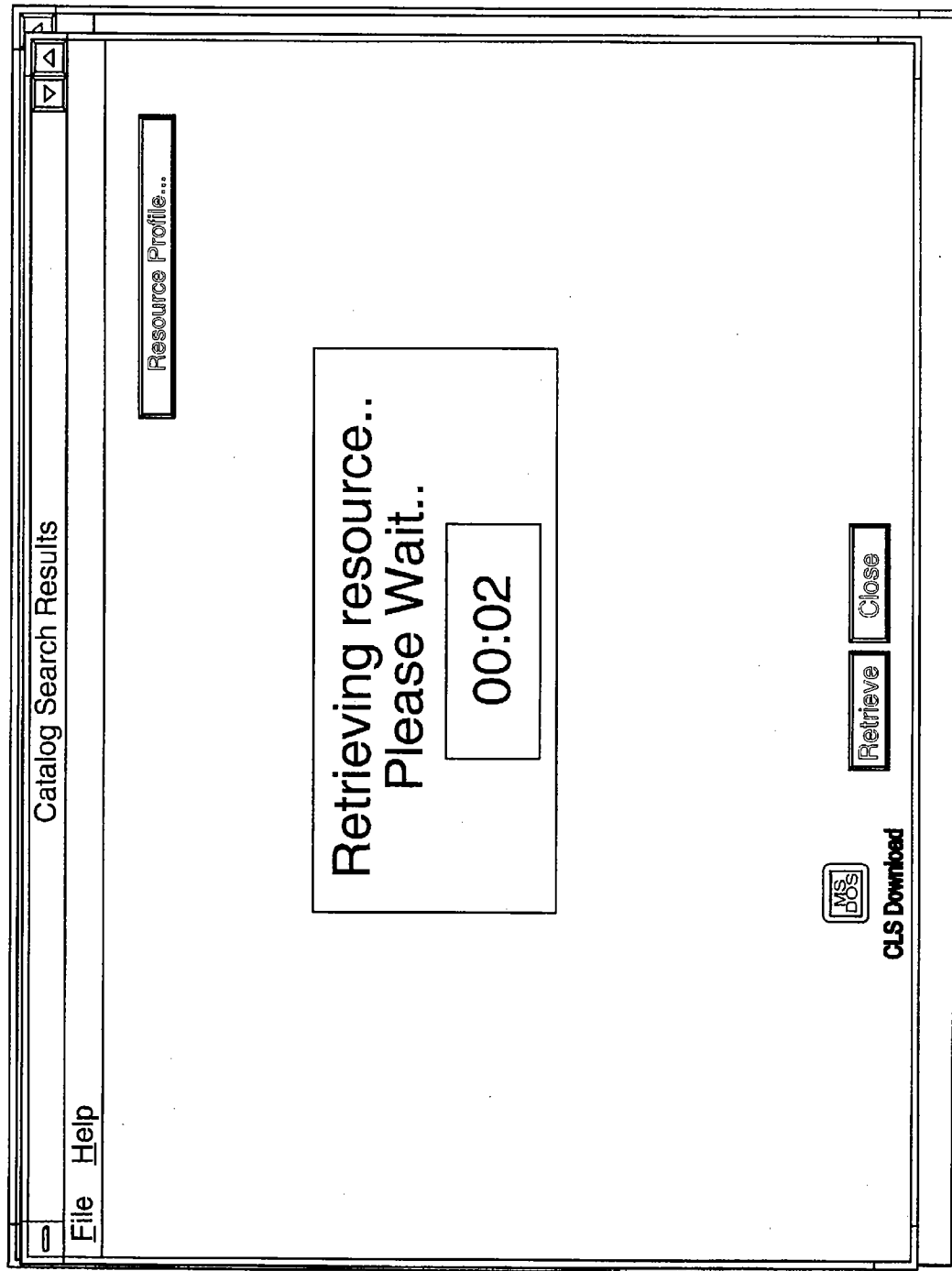
U.S. Patent

Dec. 31, 2002

Sheet 18 of 101

US 6,502,096 B1

FIG. 13



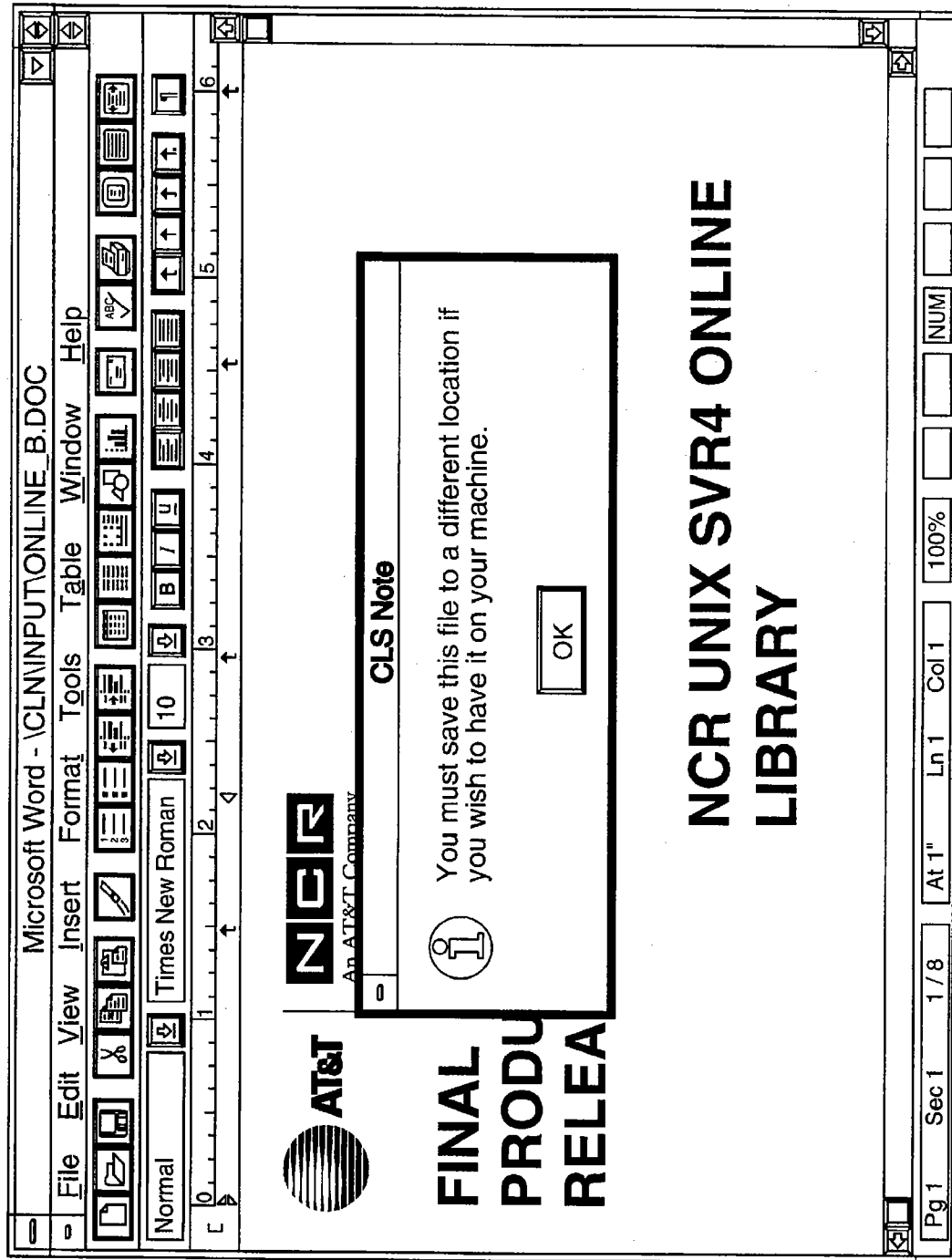
U.S. Patent

Dec. 31, 2002

Sheet 19 of 101

US 6,502,096 B1

FIG. 14



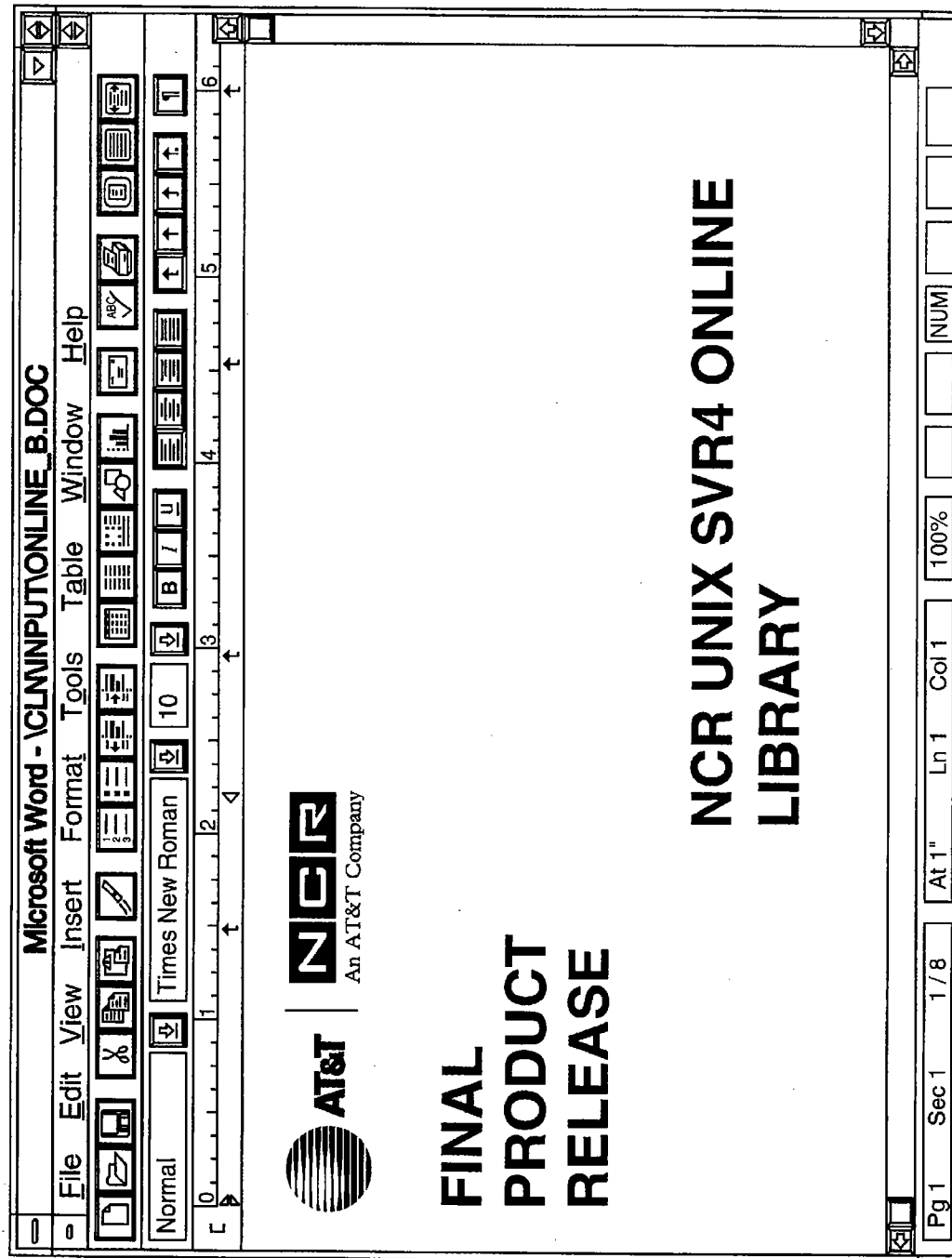
U.S. Patent

Dec. 31, 2002

Sheet 20 of 101

US 6,502,096 B1

FIG. 15



U.S. Patent

Dec. 31, 2002

Sheet 21 of 101

US 6,502,096 B1

FIG. 16

CLS - Locate and View

File Help

Search

File Help

AND-@ OR-/ NOT-!

Title: unix@library

AND

Description:

ON

Date: / / dd/mm/yy

Ok Cancel Clear Help

4

media

8

BACK TO PREVIOUS SCREEN

- Display all authorized resources by media type.
- Close window and return to main

Type in your search word, phrase or letters. Click on Search button and if there are any resources that match your search entry a list will be displayed or an error will be displayed. Press F1 for help.

U.S. Patent

Dec. 31, 2002

Sheet 22 of 101

US 6,502,096 B1

FIG. 17

File Help

Catalog Search Results

Resource Profile...

1 entries returned.

	Media	Date/Time	Title
1	On Line	01/19/94 09:57	NCR UNIX Online Library

Retrieve Close

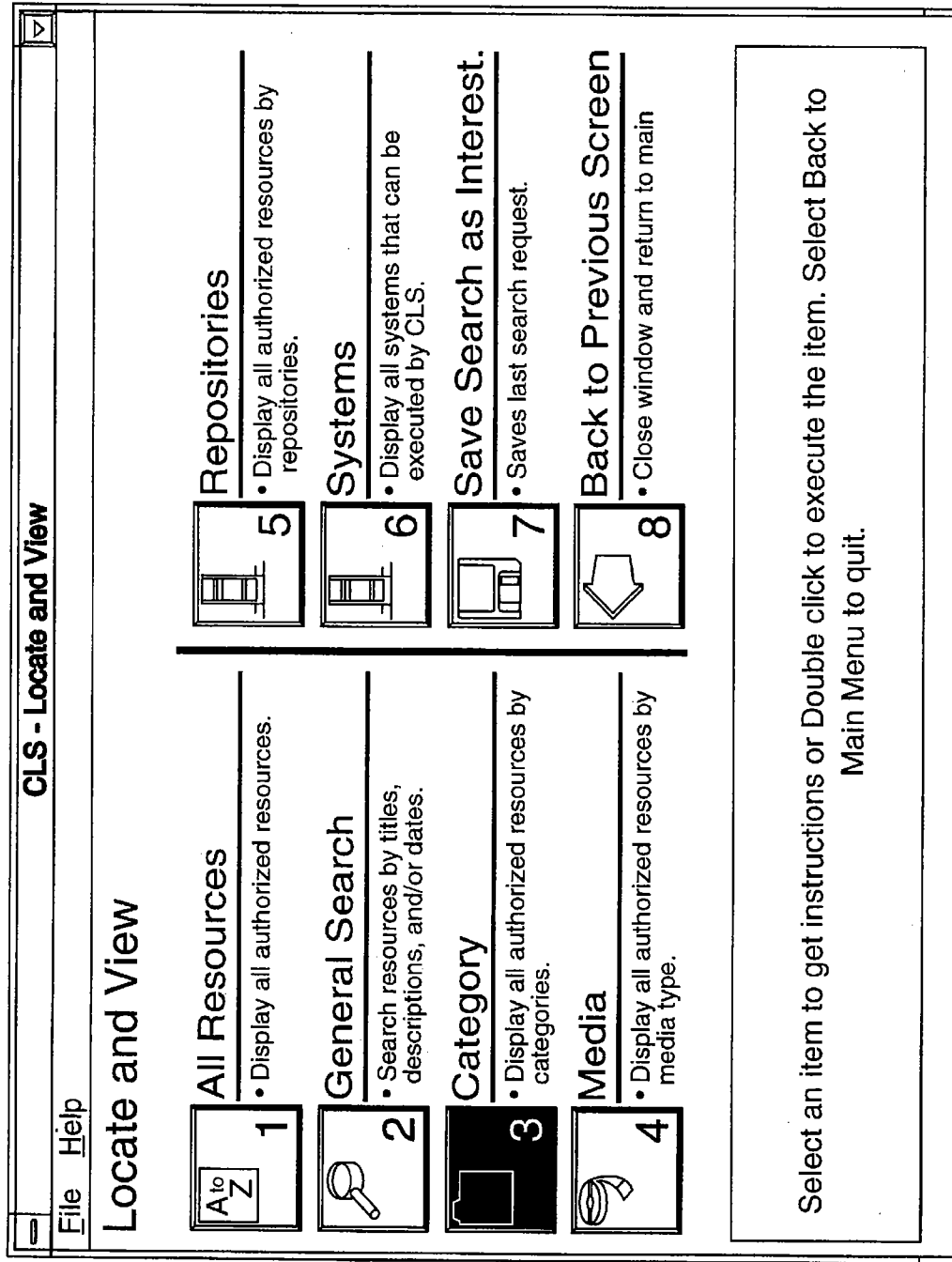
U.S. Patent

Dec. 31, 2002

Sheet 23 of 101

US 6,502,096 B1

FIG. 18

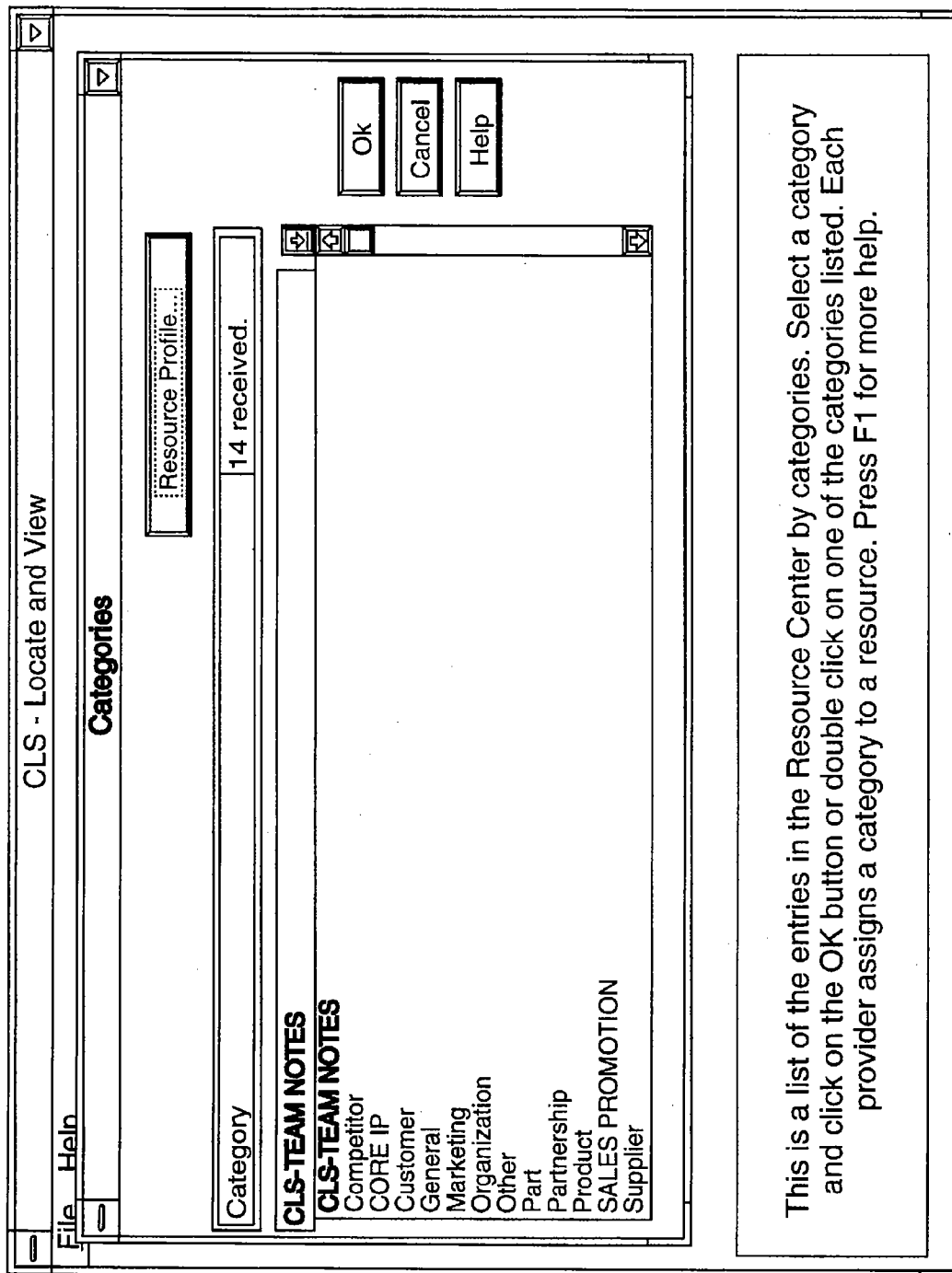


U.S. Patent

Dec. 31, 2002

Sheet 24 of 101

US 6,502,096 B1

FIG. 19

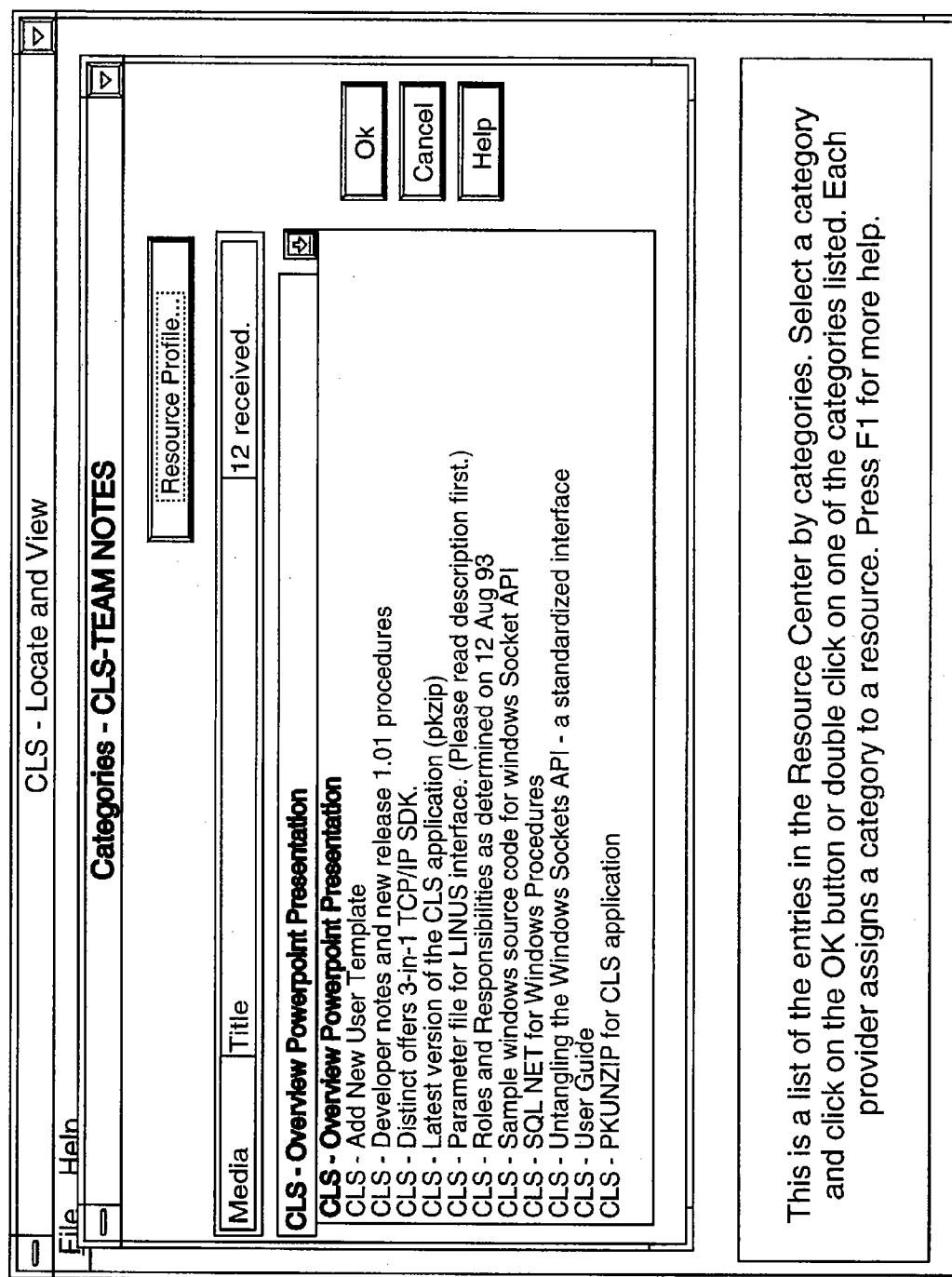
U.S. Patent

Dec. 31, 2002

Sheet 25 of 101

US 6,502,096 B1

FIG. 20



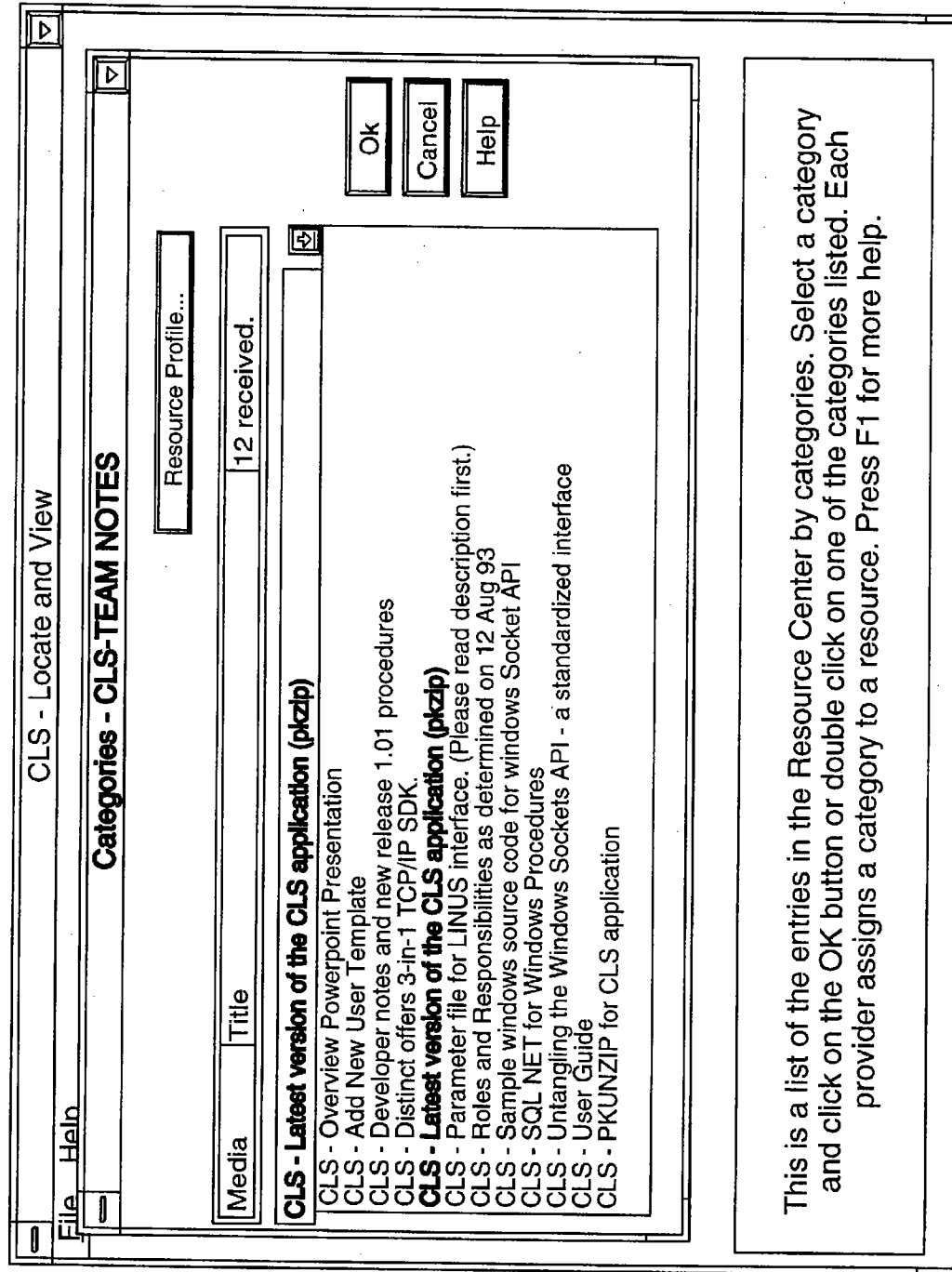
U.S. Patent

Dec. 31, 2002

Sheet 26 of 101

US 6,502,096 B1

FIG. 21



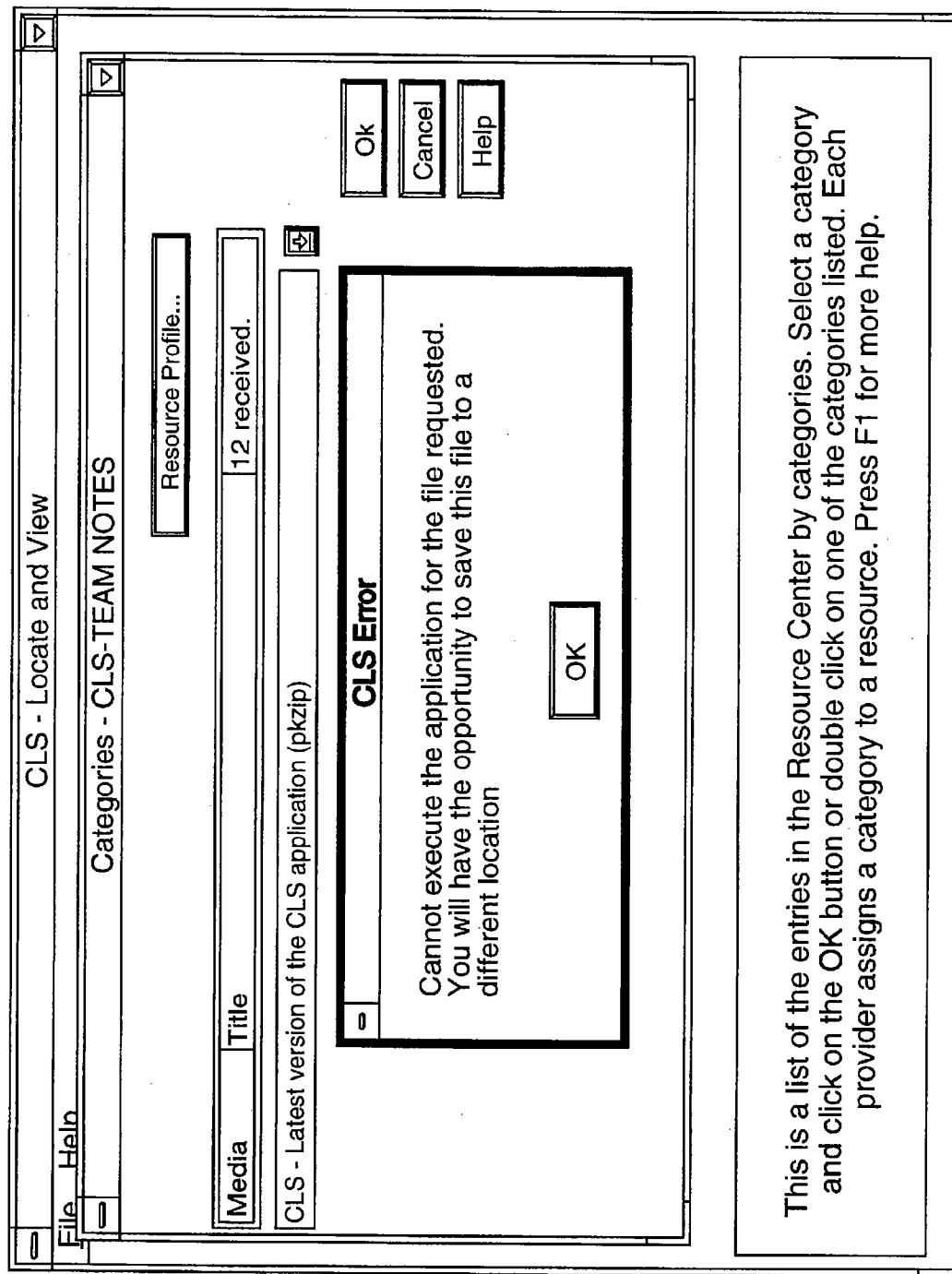
U.S. Patent

Dec. 31, 2002

Sheet 27 of 101

US 6,502,096 B1

FIG. 22

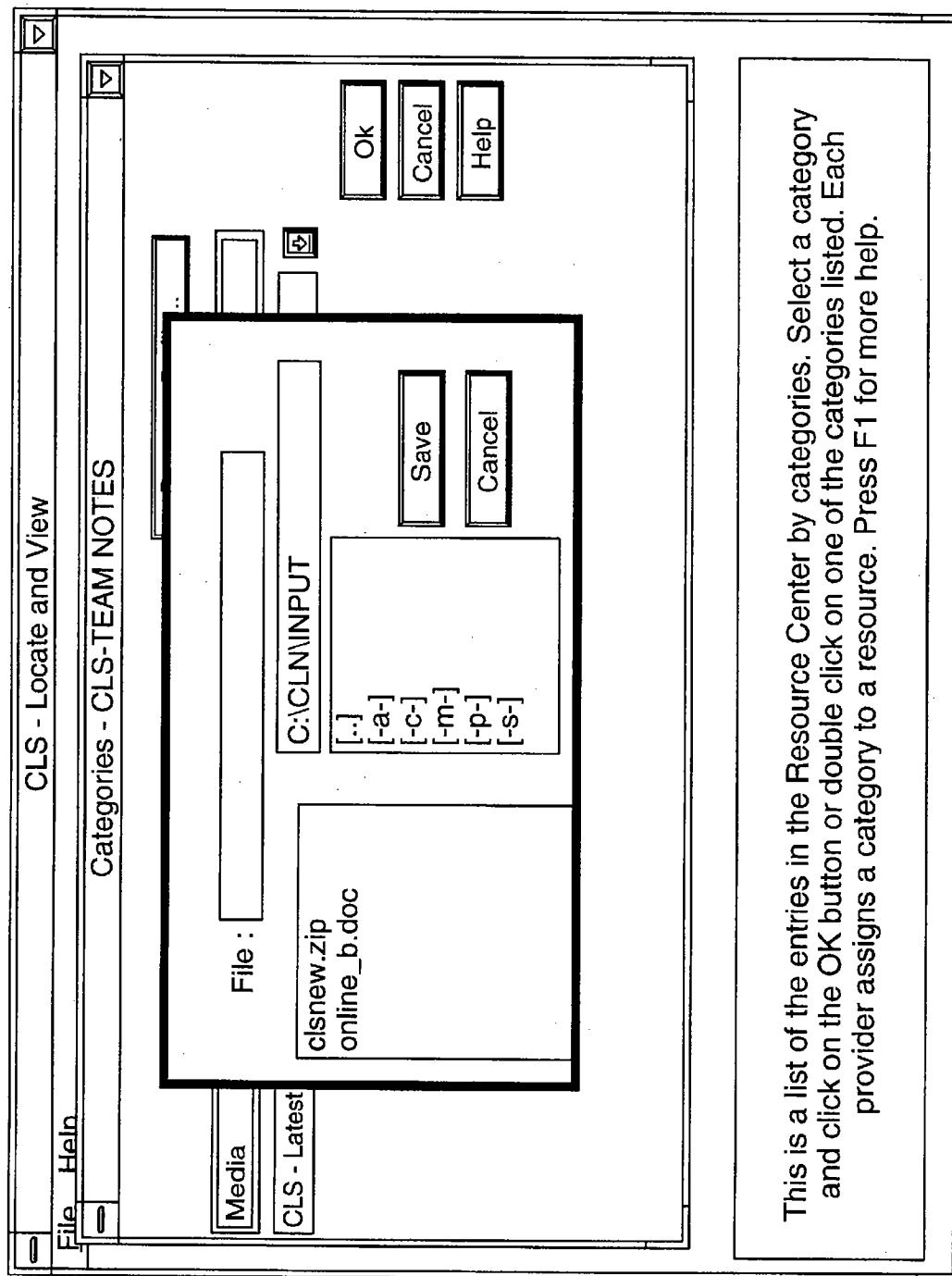


U.S. Patent

Dec. 31, 2002

Sheet 28 of 101

US 6,502,096 B1

FIG. 23

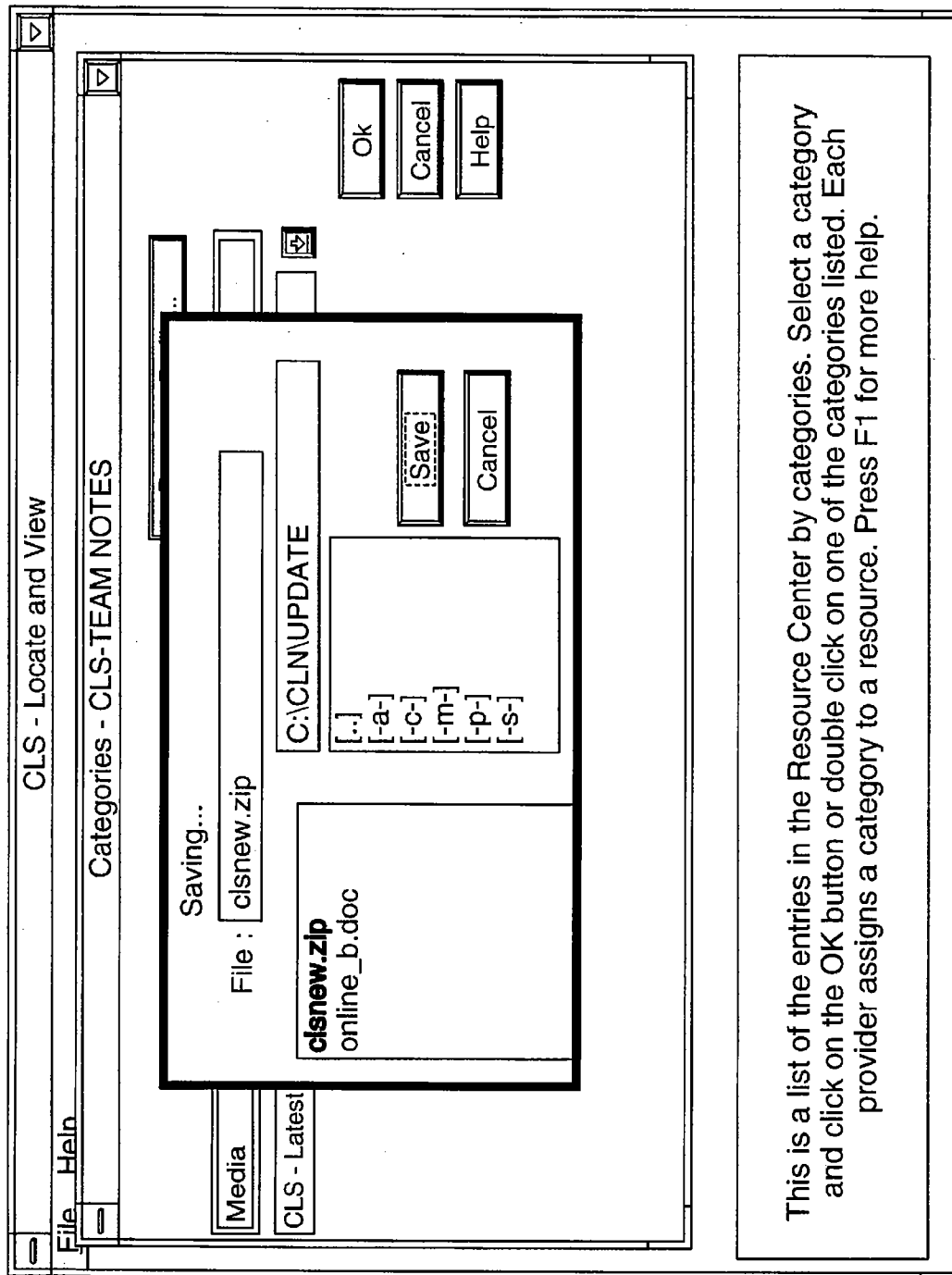
U.S. Patent

Dec. 31, 2002

Sheet 29 of 101

US 6,502,096 B1

FIG. 24

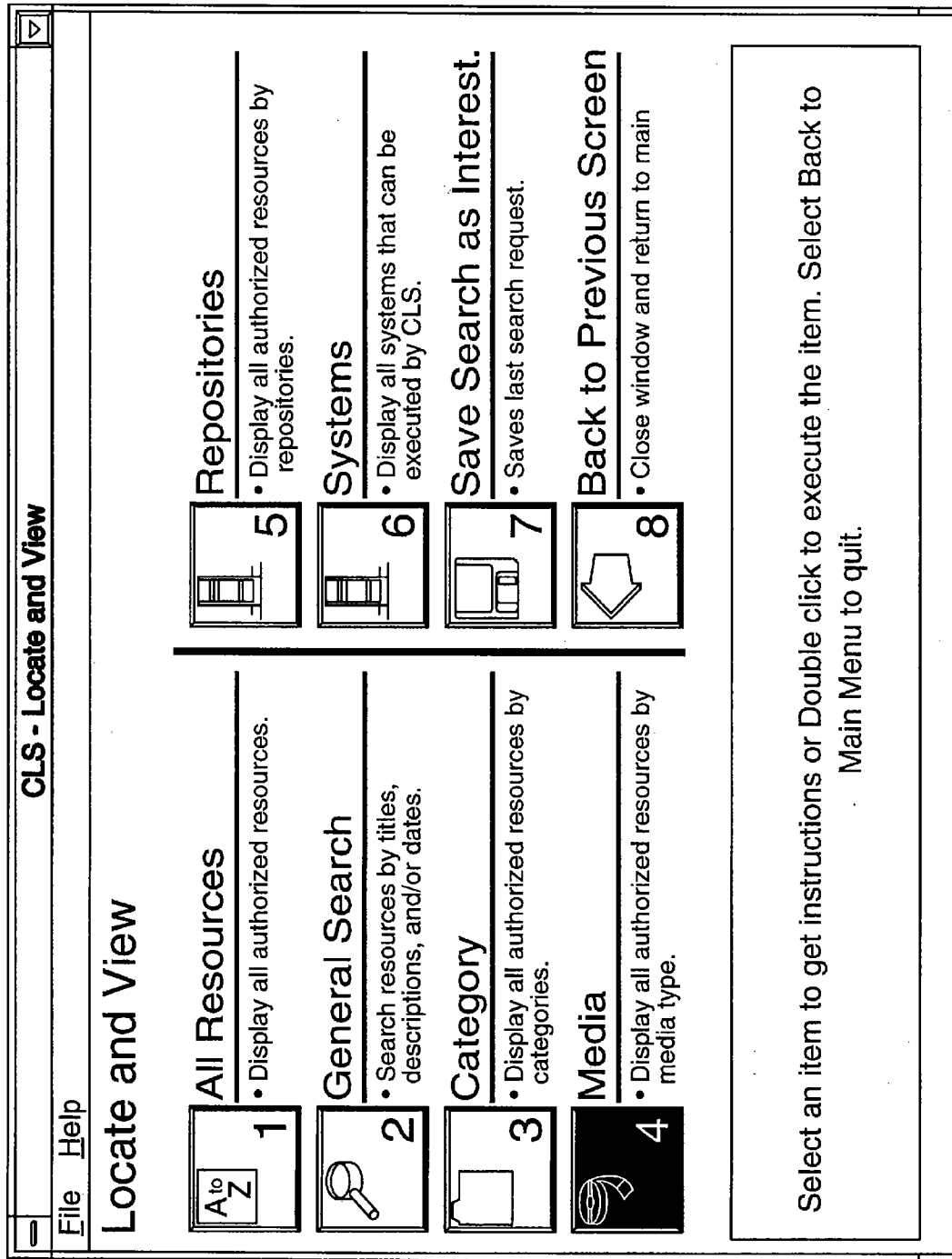


U.S. Patent

Dec. 31, 2002

Sheet 30 of 101

US 6,502,096 B1

FIG. 25

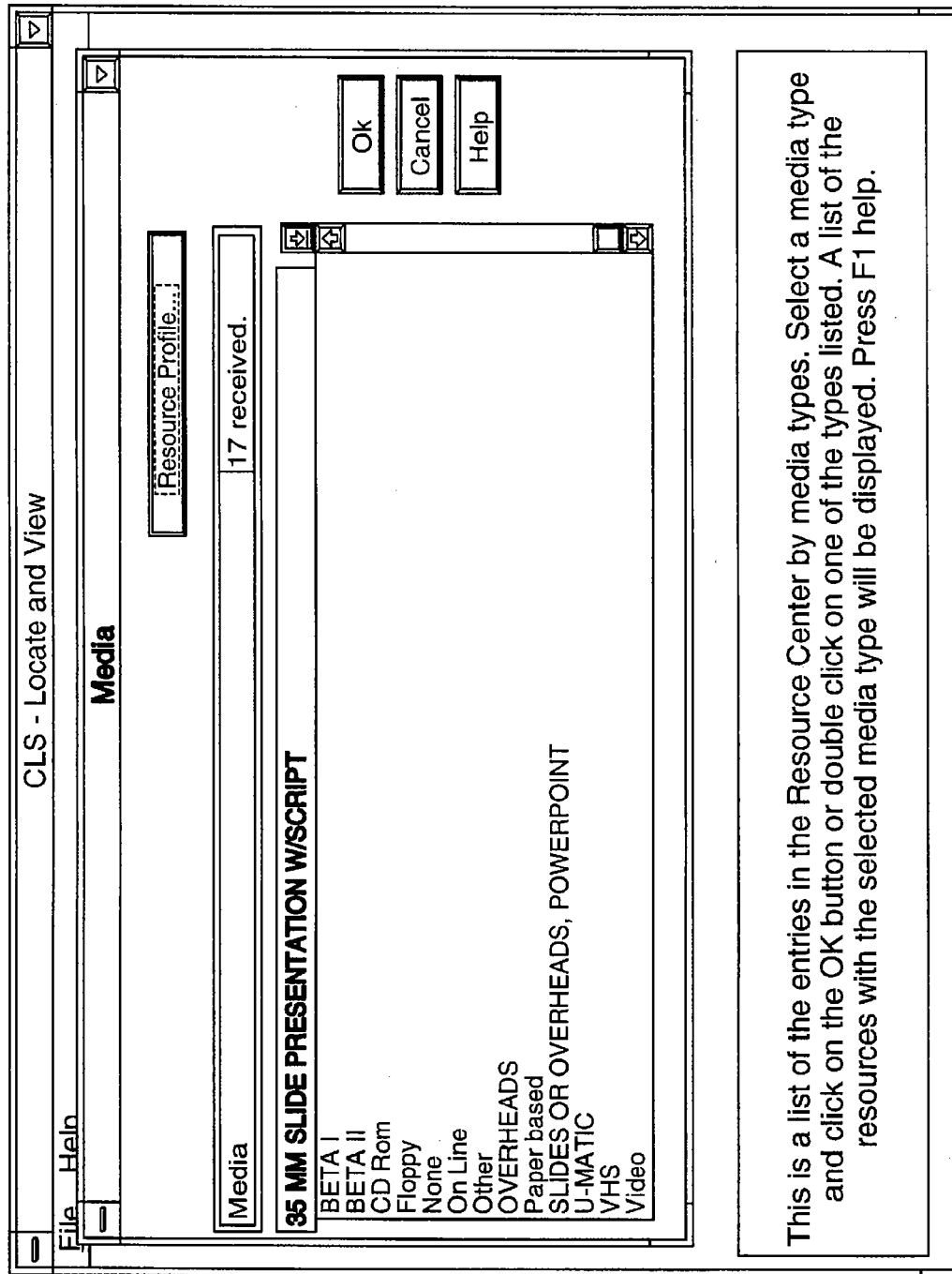
U.S. Patent

Dec. 31, 2002

Sheet 31 of 101

US 6,502,096 B1

FIG. 26



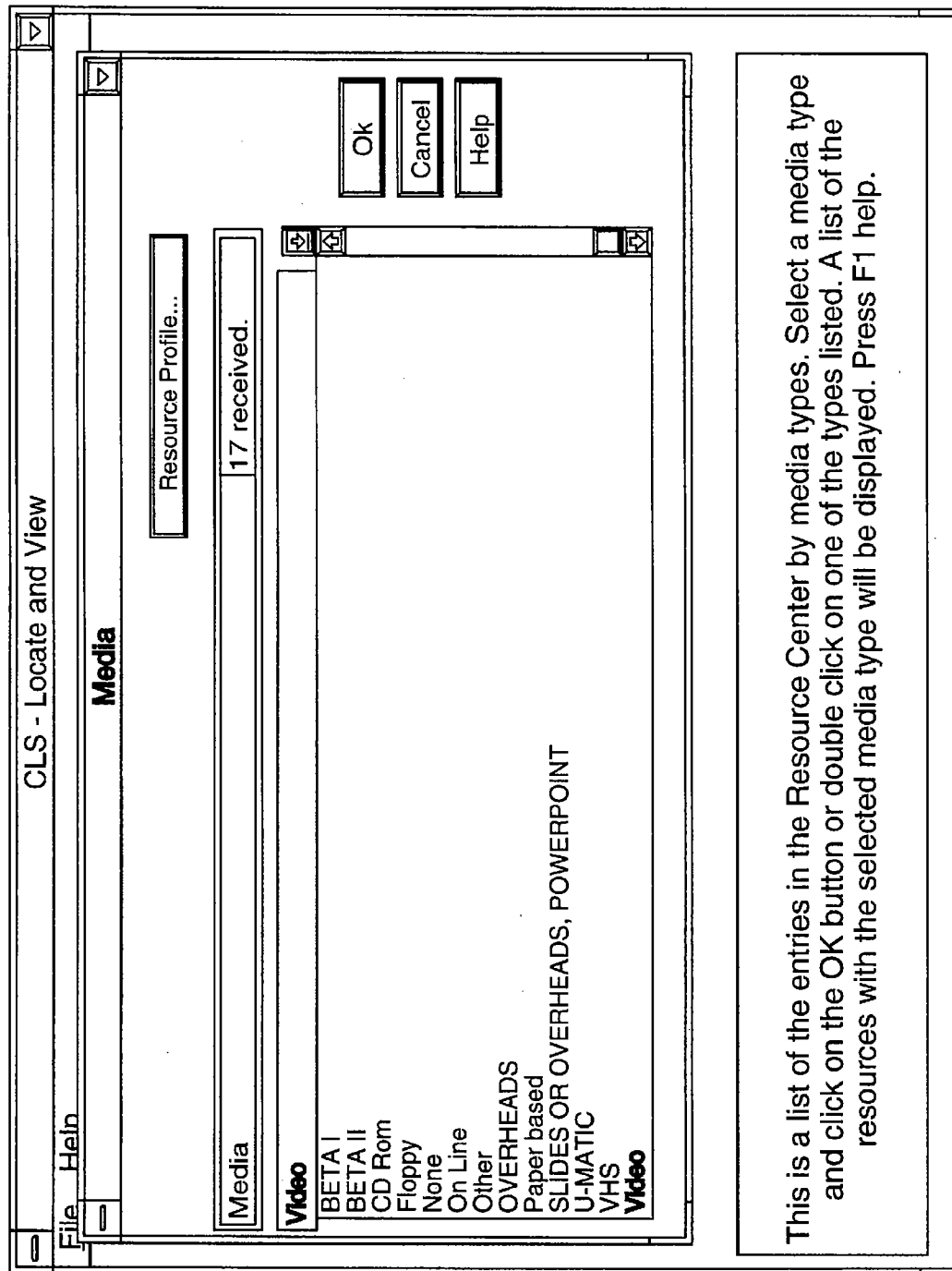
U.S. Patent

Dec. 31, 2002

Sheet 32 of 101

US 6,502,096 B1

FIG. 27



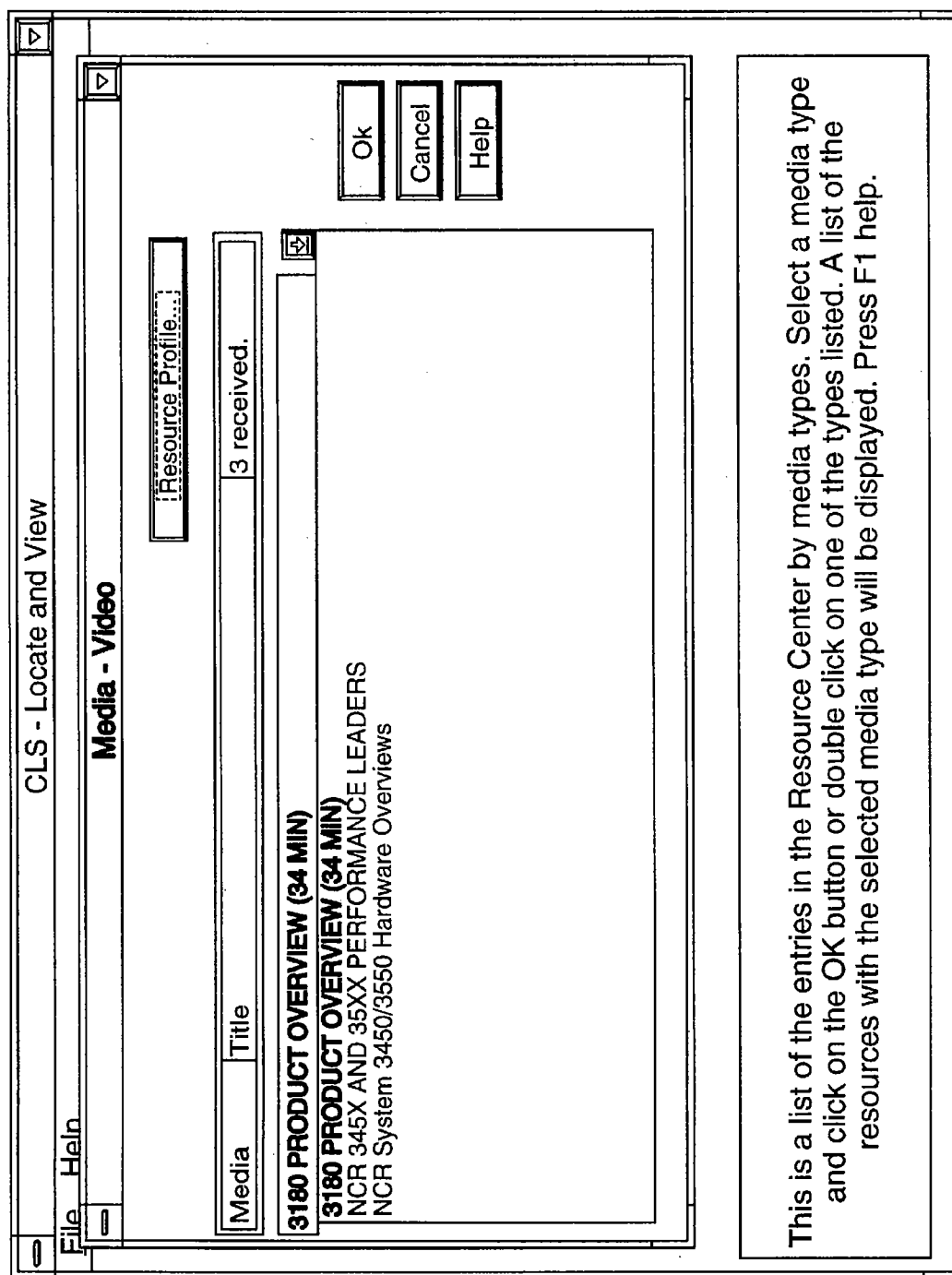
U.S. Patent

Dec. 31, 2002

Sheet 33 of 101

US 6,502,096 B1

FIG. 28



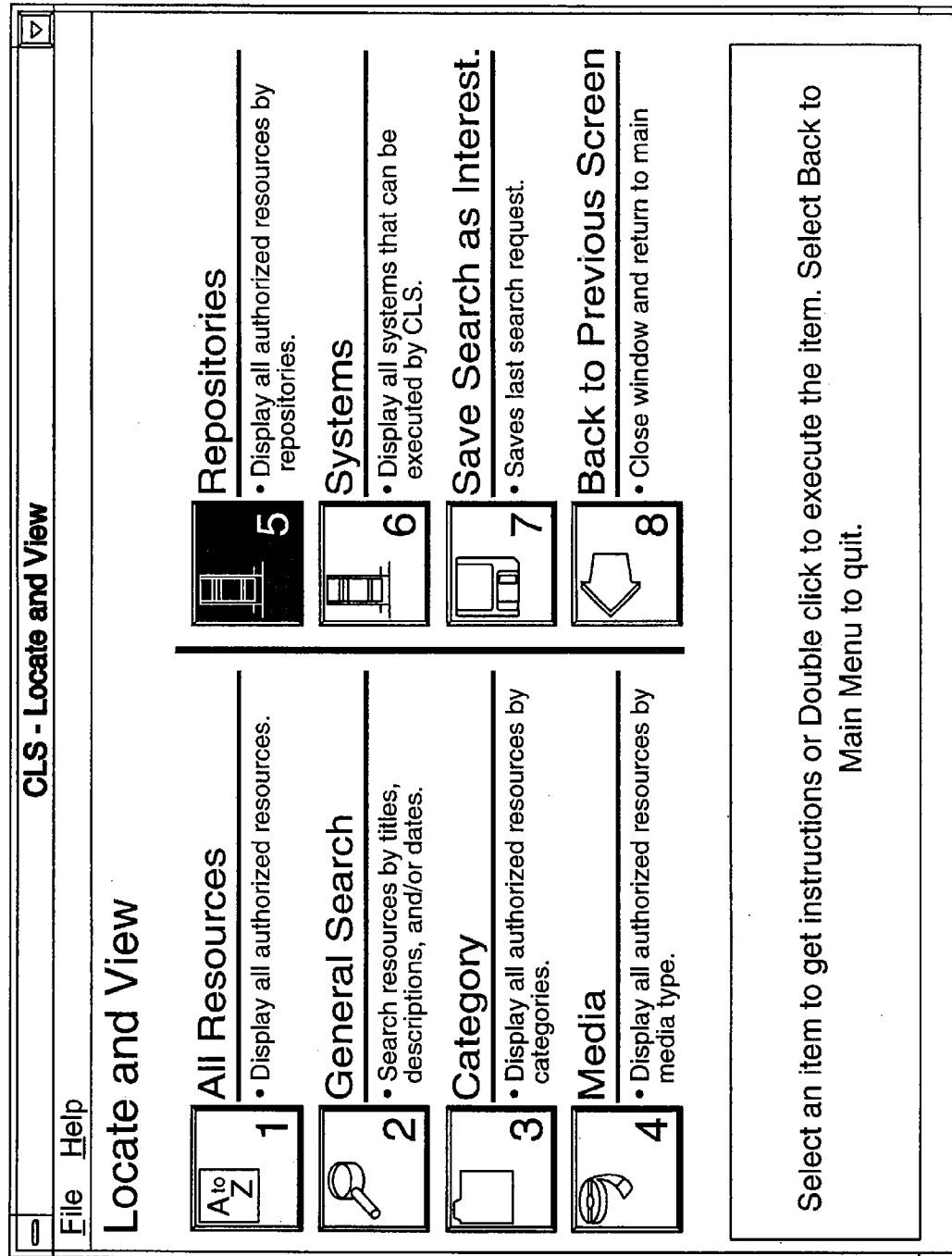
U.S. Patent

Dec. 31, 2002

Sheet 34 of 101

US 6,502,096 B1

FIG. 29



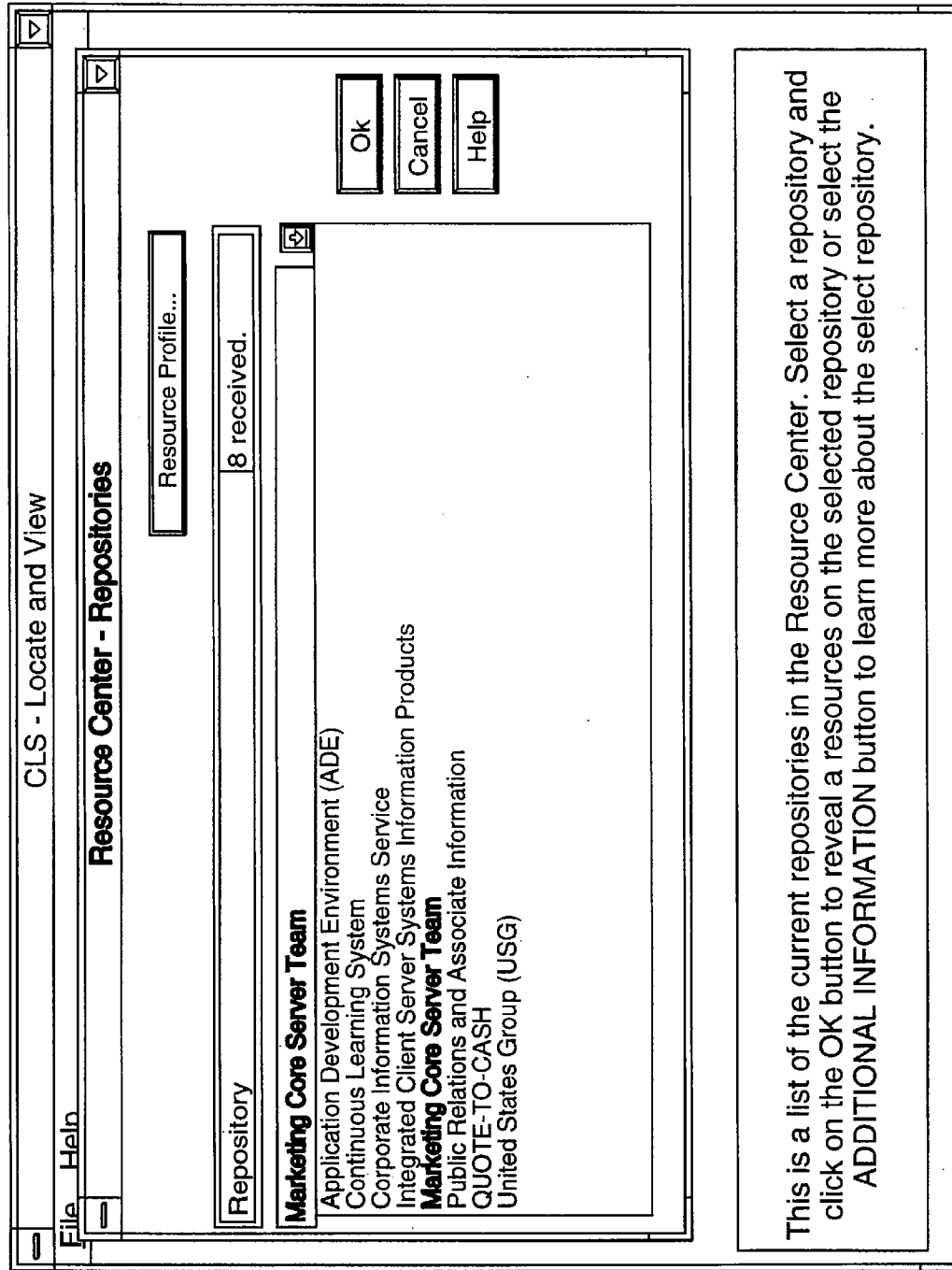
U.S. Patent

Dec. 31, 2002

Sheet 35 of 101

US 6,502,096 B1

FIG. 30



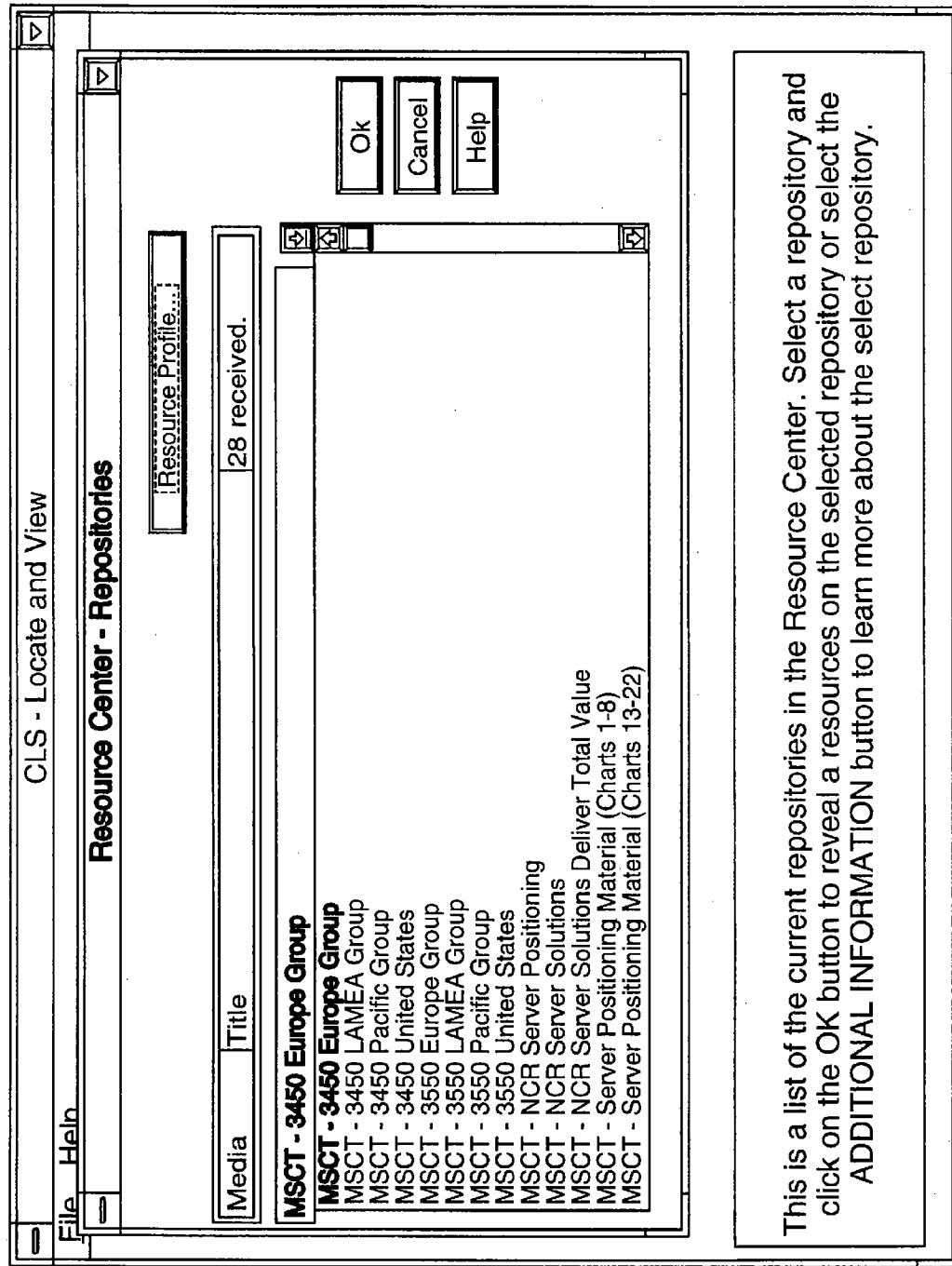
U.S. Patent

Dec. 31, 2002

Sheet 36 of 101

US 6,502,096 B1

FIG. 31



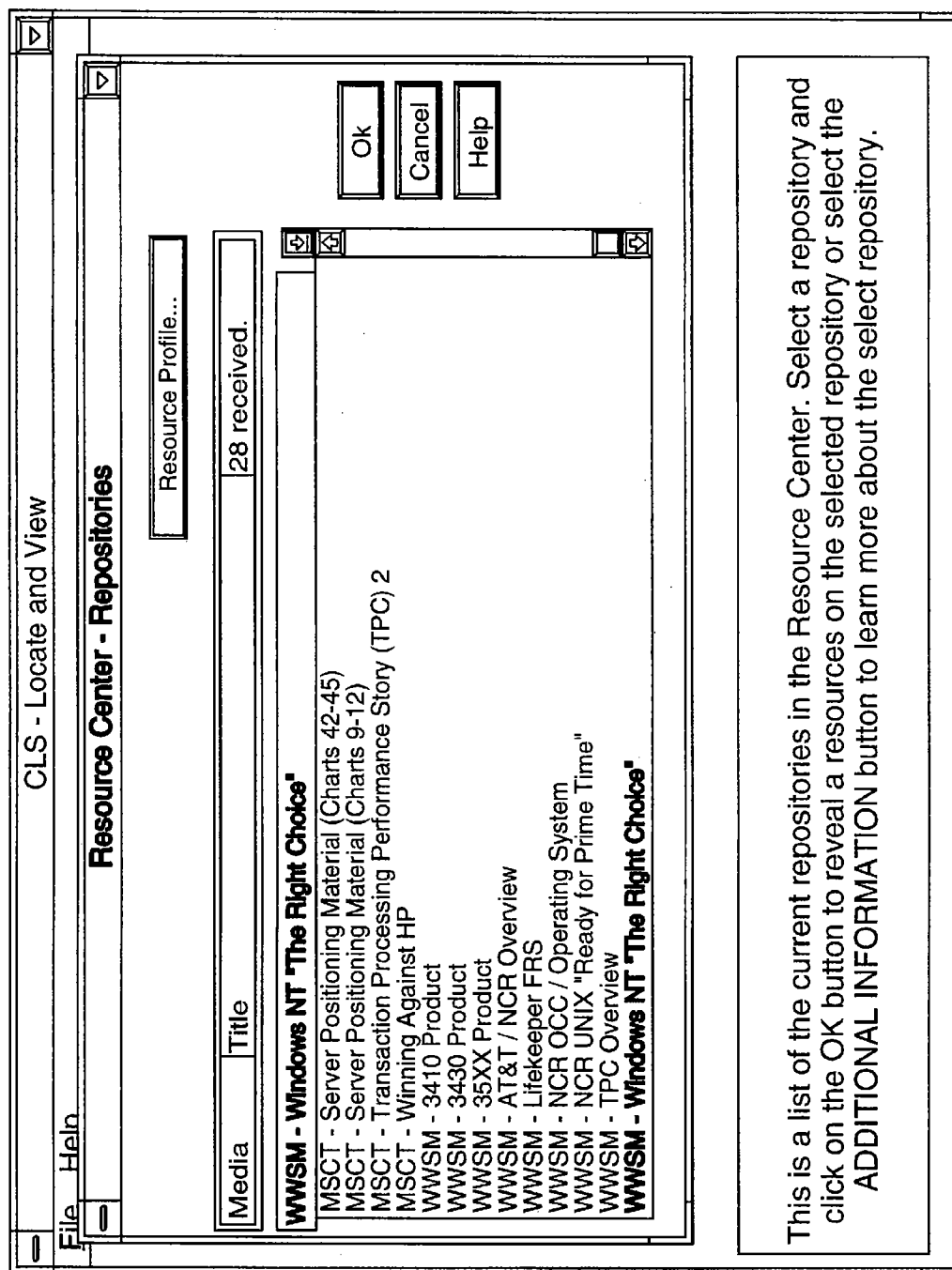
U.S. Patent

Dec. 31, 2002

Sheet 37 of 101

US 6,502,096 B1

FIG. 32



U.S. Patent

Dec. 31, 2002

Sheet 38 of 101

US 6,502,096 B1

FIG. 33

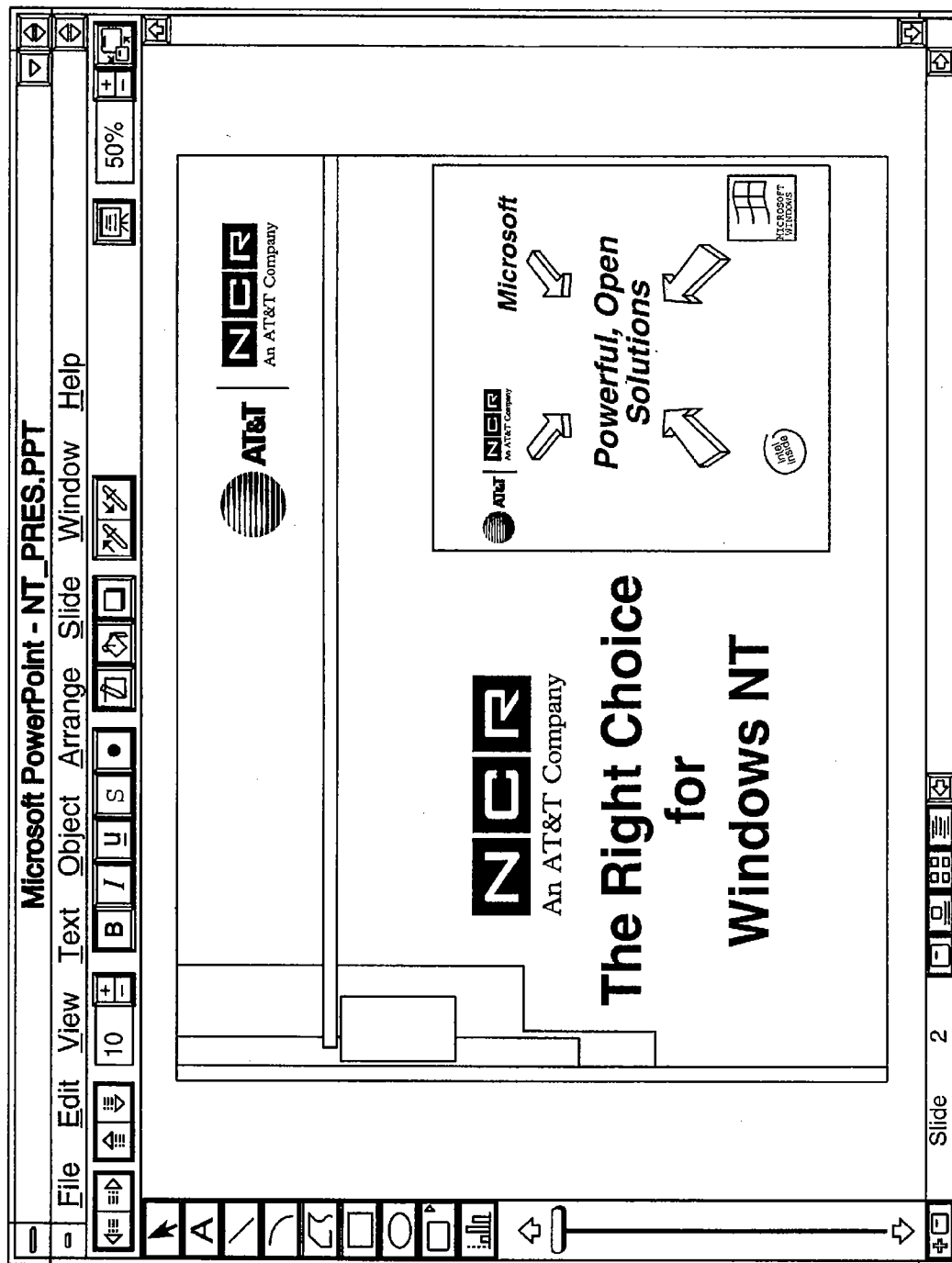
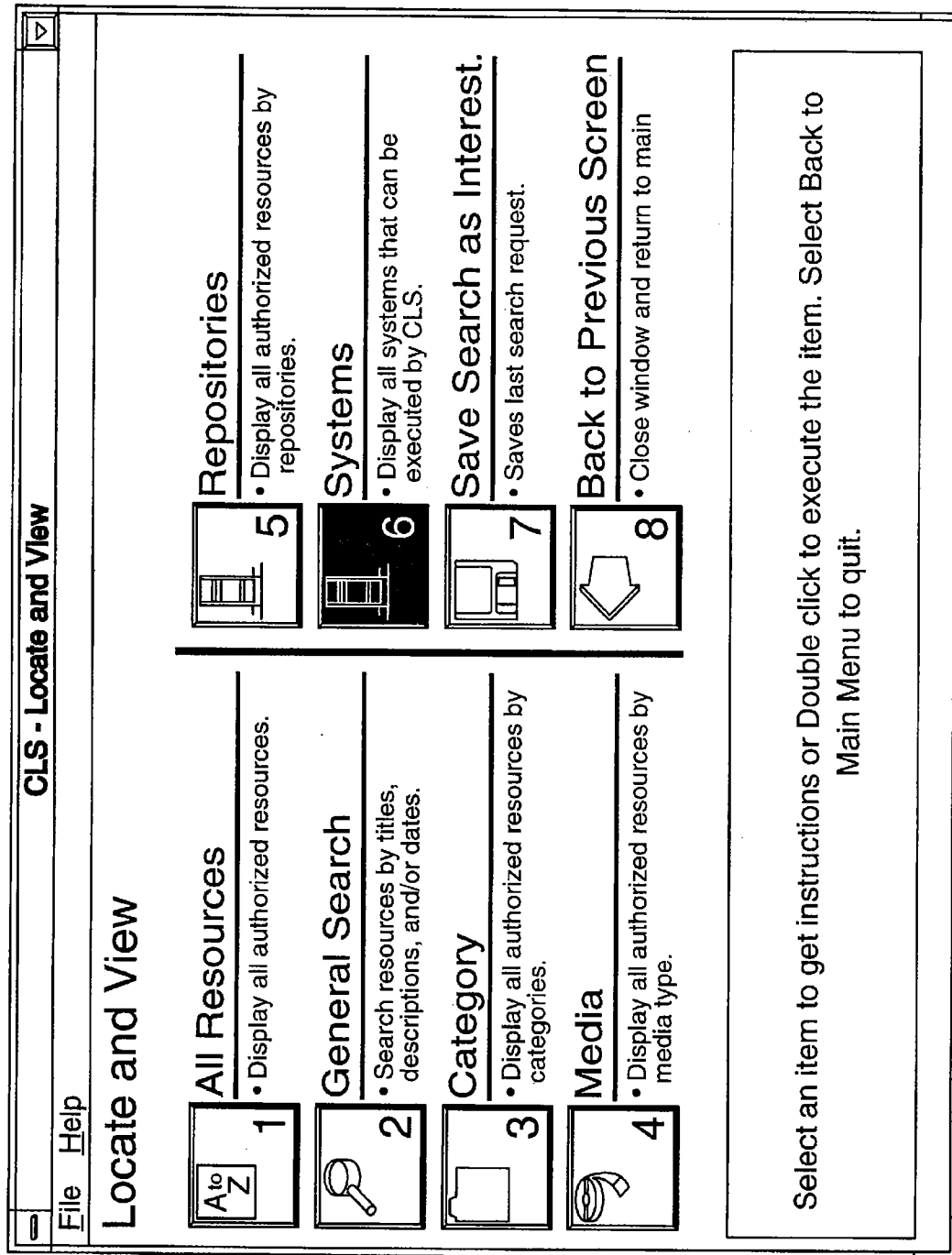


FIG. 34

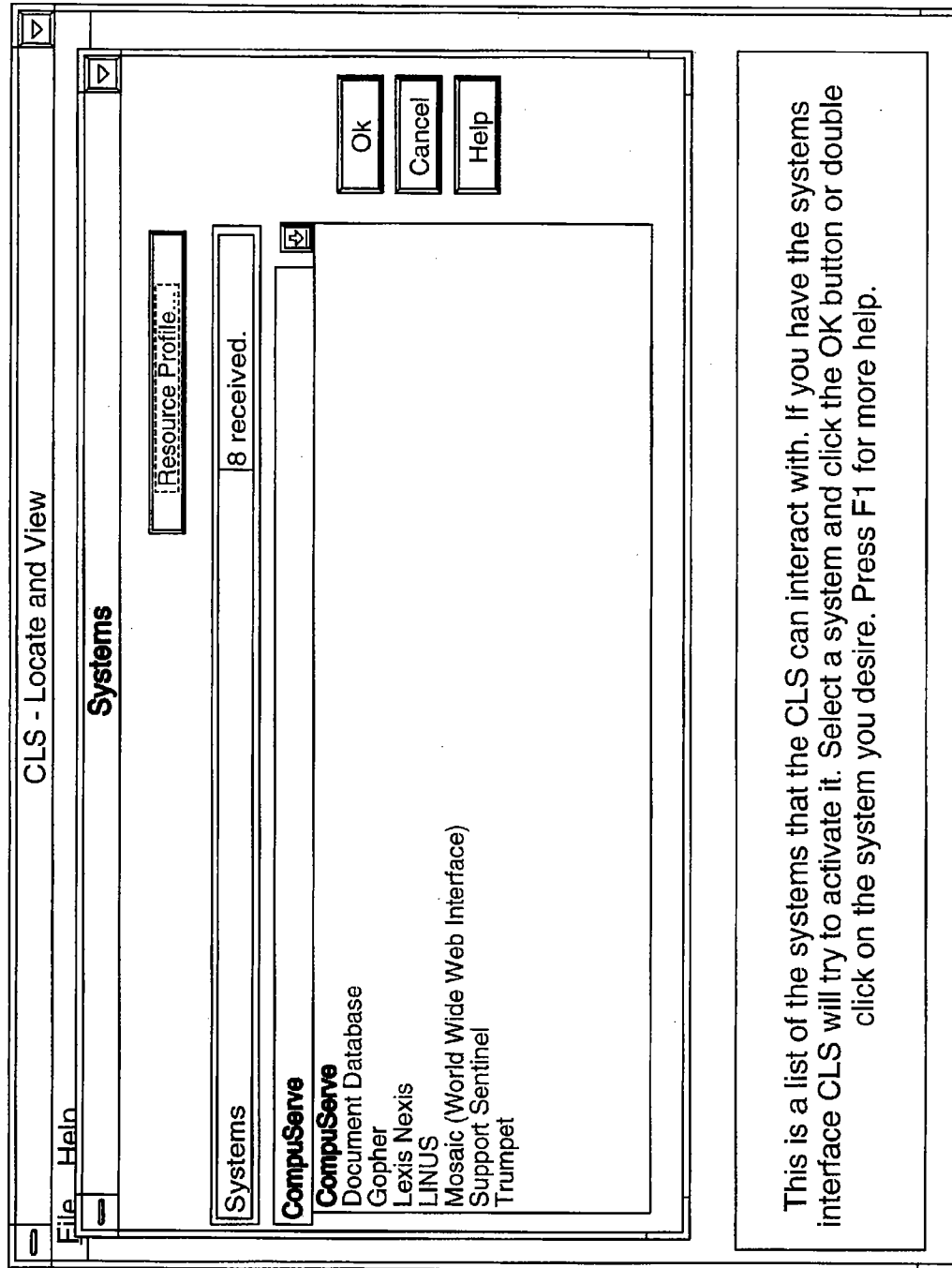
U.S. Patent

Dec. 31, 2002

Sheet 40 of 101

US 6,502,096 B1

FIG. 35



U.S. Patent

Dec. 31, 2002

Sheet 41 of 101

US 6,502,096 B1

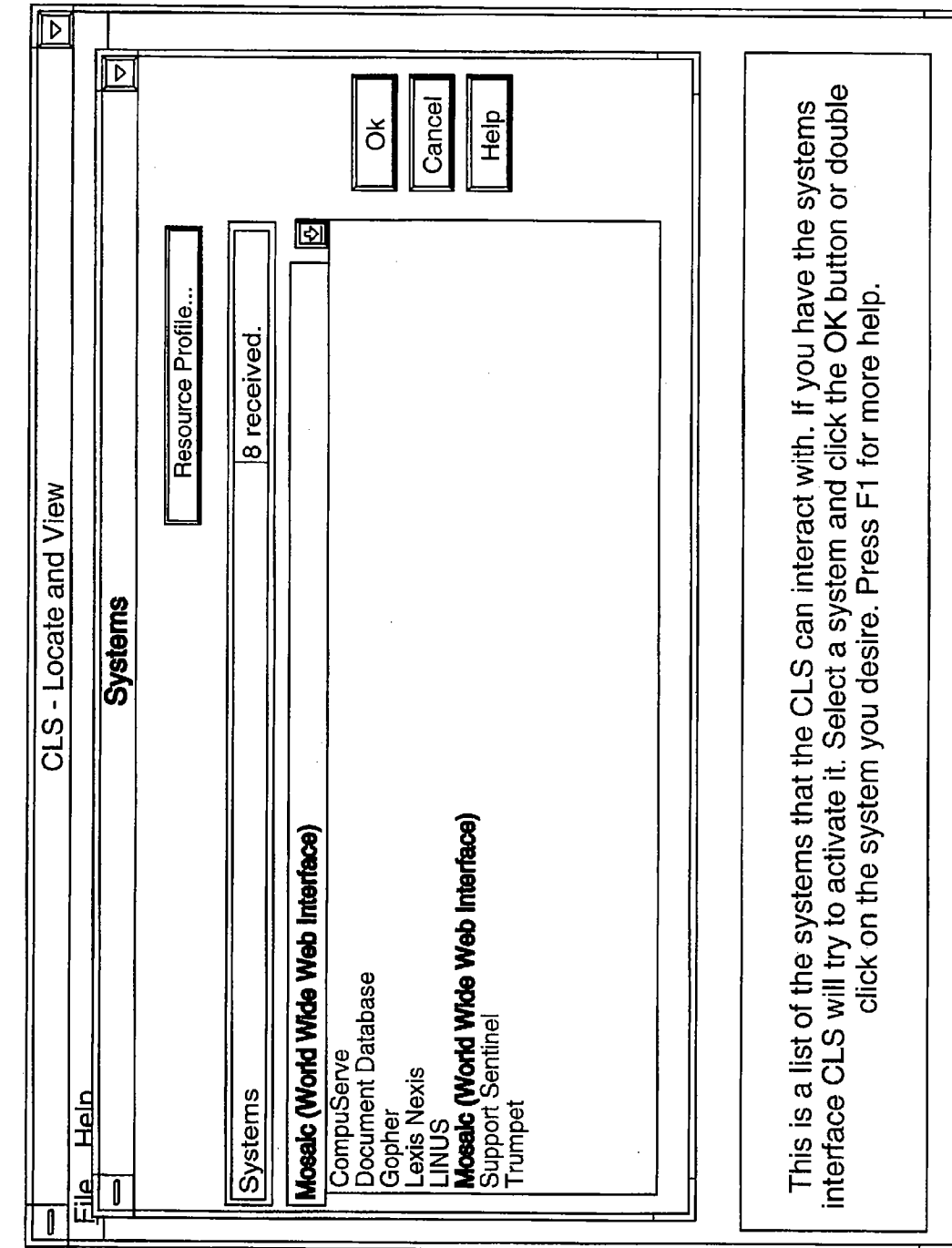


FIG. 36

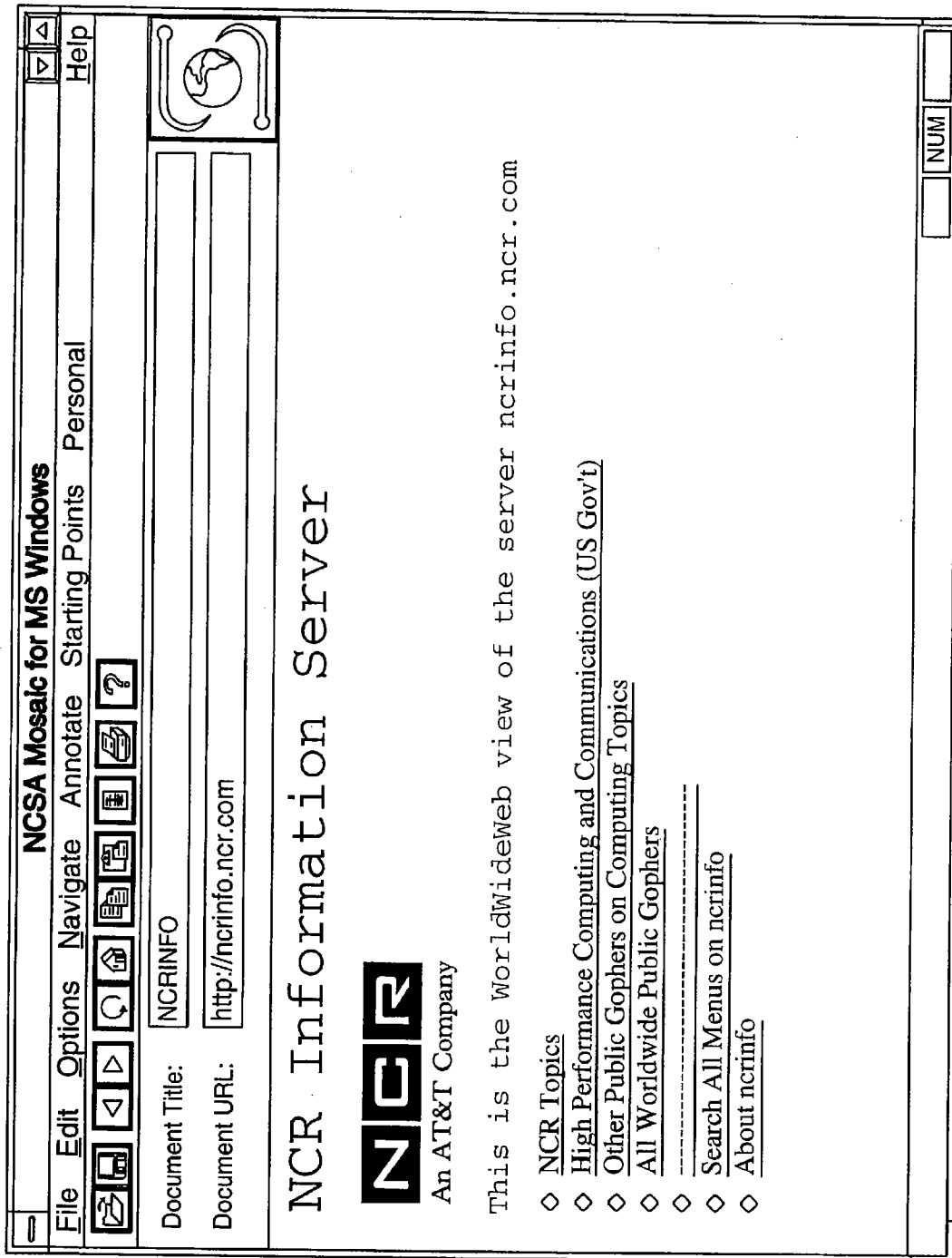
U.S. Patent

Dec. 31, 2002

Sheet 42 of 101

US 6,502,096 B1

FIG. 37

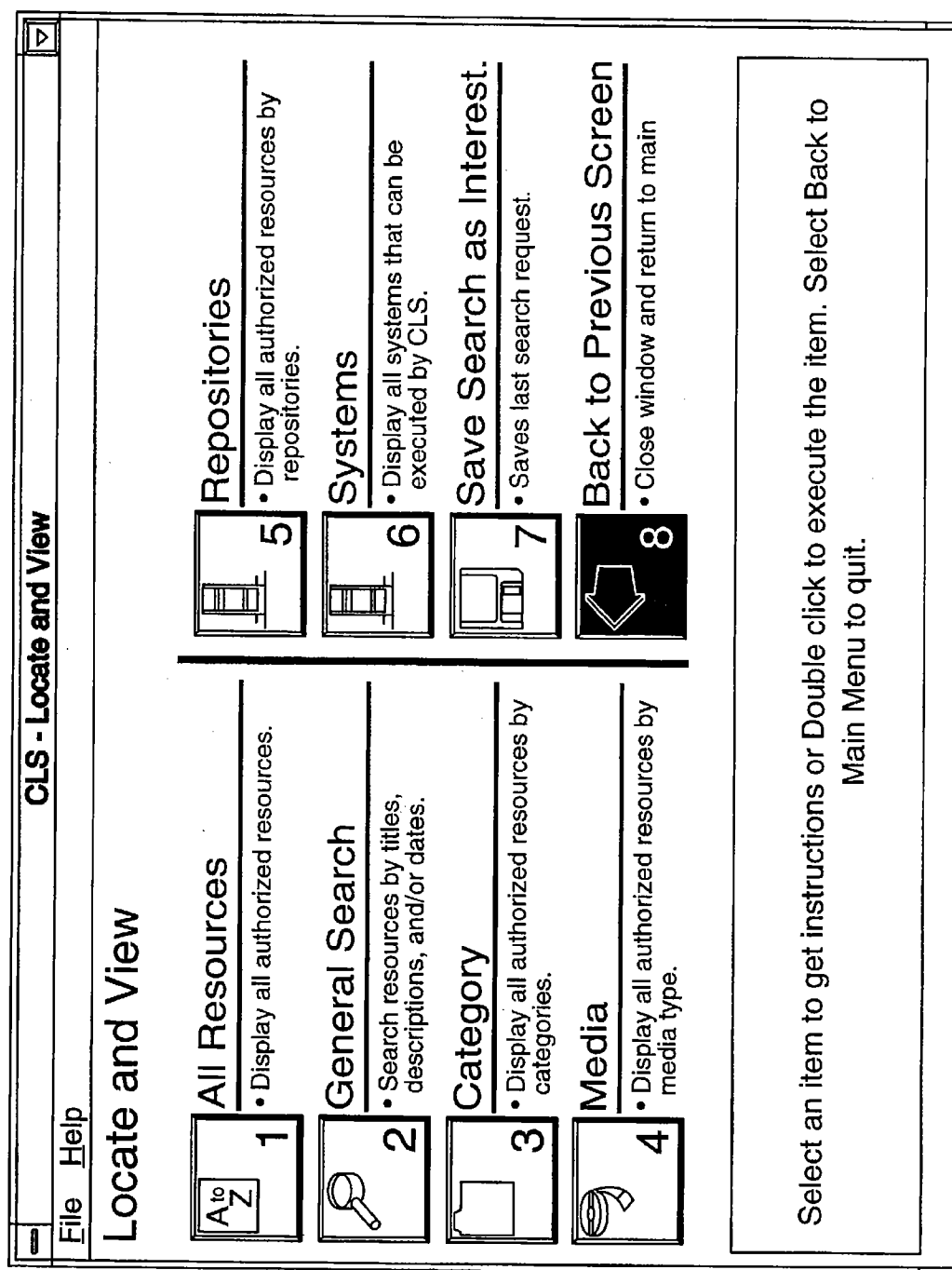


U.S. Patent

Dec. 31, 2002

Sheet 43 of 101

US 6,502,096 B1

FIG. 38

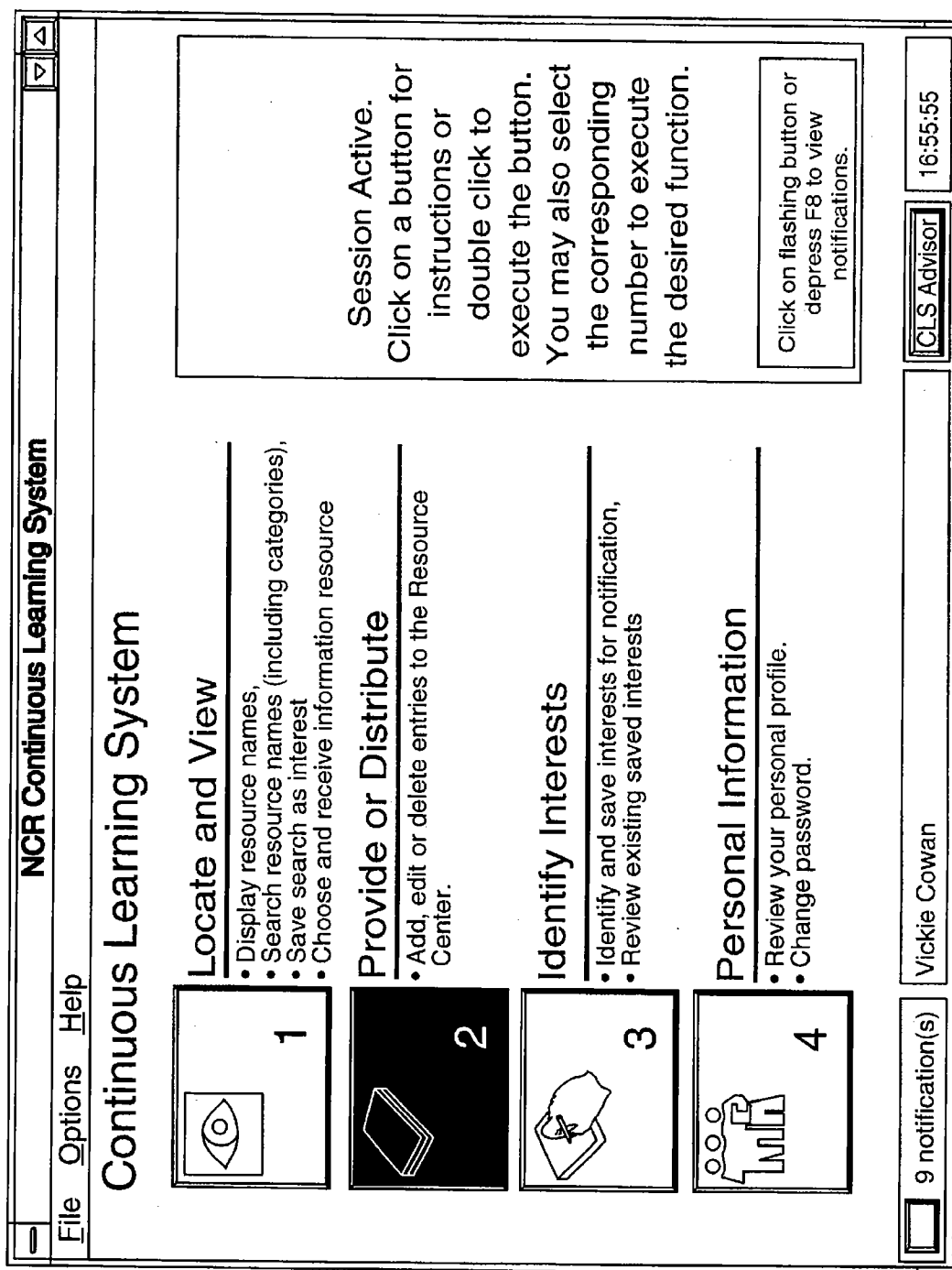
U.S. Patent

Dec. 31, 2002

Sheet 44 of 101

US 6,502,096 B1

FIG. 39



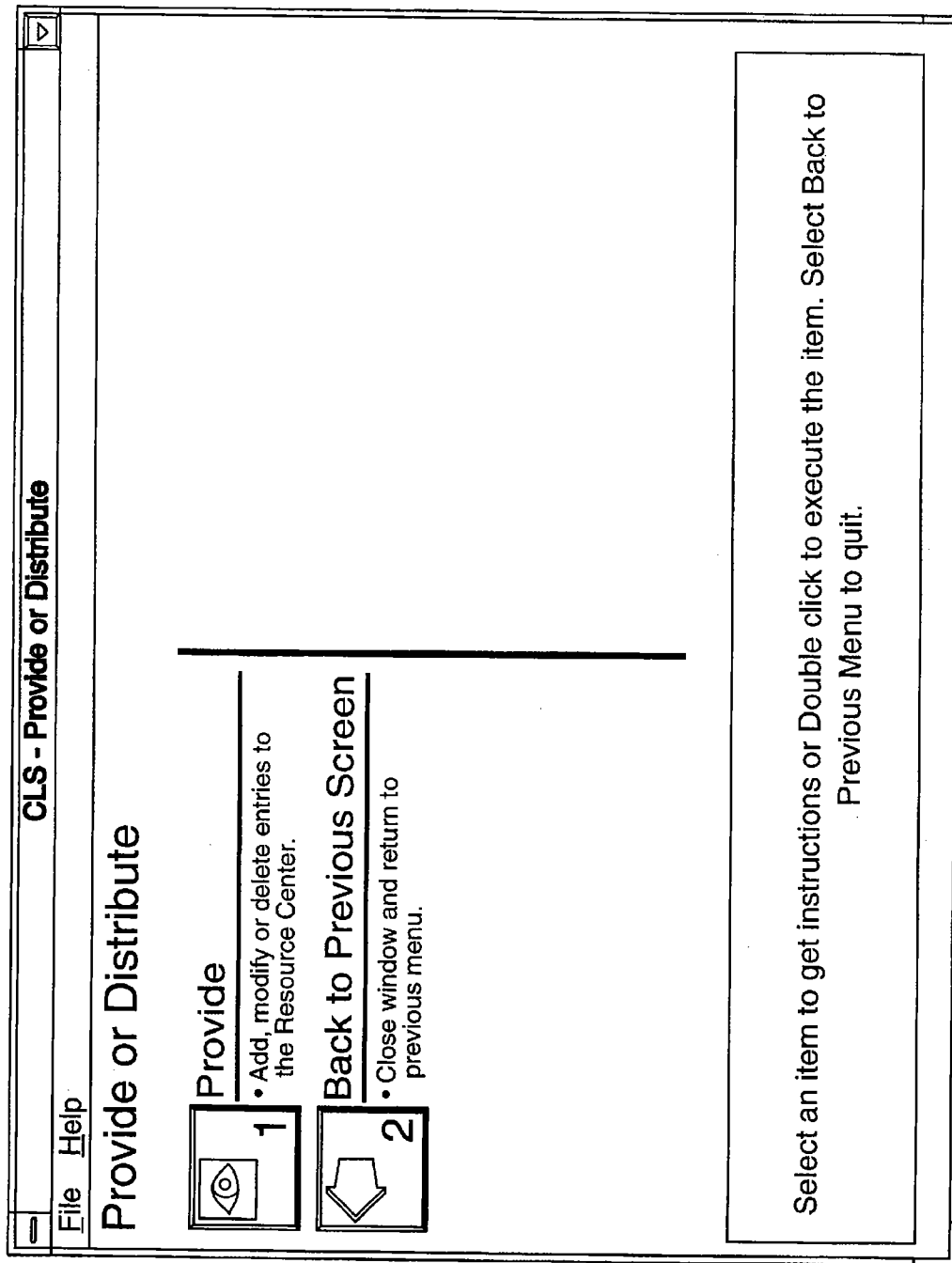
U.S. Patent

Dec. 31, 2002

Sheet 45 of 101

US 6,502,096 B1

FIG. 40



U.S. Patent

Dec. 31, 2002

Sheet 46 of 101

US 6,502,096 B1

FIG. 41

Resource Administration

File Help

Access Level: ☐ Public ☐ Organization ☐ Team

Resource Title:

Date Added: Date Updated: / /

Product ID:

Cost:

Price:

Information Category:

Information Filename:

Repository:

Resource Description:

Remarks:

Media:

Format:

Point of Contact:

Alternate Administrator:

Bitmap>>

Ok Cancel New Modify Delete Clear All Help

Please select either New, Modify or Cancel.

U.S. Patent

Dec. 31, 2002

Sheet 47 of 101

US 6,502,096 B1

FIG. 42

The screenshot shows a window titled "Resource Administration" with a menu bar containing "File", "Help", and a search icon. The main area contains the following fields and controls:

- Access Level:** Three checkboxes labeled "Public", "IPD only", and "Team".
- Resource Title:** A single-line text input field.
- Date Added:** A text input field with a date format " / / " and a "Date Updated:" label.
- Product ID:** A single-line text input field.
- Cost:** A single-line text input field.
- Price:** A single-line text input field.
- Information Category:** A dropdown menu with options: "Customer", "Marketing", "Product", "Supplier", "Technology", "Other", and "Partnership".
- Information Filename:** A single-line text input field.
- Repository:** A single-line text input field.
- Resource Description:** A multi-line text input area.
- Remarks:** A single-line text input field.
- Media:** A single-line text input field.
- Format:** A single-line text input field.
- Point of Contact:** A single-line text input field.
- Alternate Administrator:** A single-line text input field.
- Buttons:** A row of buttons including "Ok", "Cancel", "New", "Modify", "Delete", "Clear All", and "Help".
- Bitmap Button:** A button labeled "Bitmap>>" with a small icon.
- Footer:** A rounded rectangle containing the text "Please enter new data at this time and click on OK."

U.S. Patent

Dec. 31, 2002

Sheet 48 of 101

US 6,502,096 B1

FIG. 43

Resource Administration

File Help

Access Level: ☐ Public ☐ IPD only ☐ Team

Resource Title:

Date Added: Date Updated: / /

Product ID:

Cost:

Price:

Information Category:

Information Filename:

Repository:

Resource Description:

Remarks:

Media:

Format:

Point of Contact:

Alternate Administrator:

Product
Supplier
Technology
Other
Partnership
CORE IP
CLS-TEAM NOTES

Bitmap>>

Ok Cancel New Modify Delete Clear All Help

Please enter new data at this time and click on OK.

U.S. Patent

Dec. 31, 2002

Sheet 49 of 101

US 6,502,096 B1

FIG. 44

Resource Administration

File Help

Access Level: ☐ Public ☐ IPD only ☐ Team

Resource Title:

Date Added: Date Updated:

Product ID: Media:

Cost: Format:

Price: Point of Contact:

Information Category: Alternate Administrator:

Information Filename:

Repository:

Resource Description:

Remarks:

Please enter new data at this time and click on OK.

U.S. Patent

Dec. 31, 2002

Sheet 50 of 101

US 6,502,096 B1

FIG. 45

Resource Administration

File Help

Access Level: ☐ Public ☐ IPD only ☐ Team

Resource Title:

Date Added: Date Updated: / /

Product ID:

Cost:

Price:

Information Category:

Information Filename:

Repository:

Resource Description:

Remarks:

Media: Format: Point of Contact: Alternate Administrator:

Bitmap

Ok Cancel New Modify Delete Clear All Help

Please enter new data at this time and click on OK.

U.S. Patent

Dec. 31, 2002

Sheet 51 of 101

US 6,502,096 B1

FIG. 46

Resource Administration

File Help

Access Level: ☐ Public ☐ IPD only ☐ Team

Resource Title:

Date Added:

Product ID:

Cost:

Price:

Information Category:

Information Filename:

Repository:

Resource Description:

Remarks:

Please enter new data at this time and click on OK.

Filename: File size: 0

Current Directory: C:\CLN\UPDATE

Dir List:

cat.ico
catatoz.ico
clnsign.obr
clnsign1.obr
cls.ini
clshelp.hlp
clsnew.zip
clsxfr.bat
clsxfr.pif

[-a-]
[-c-]
[-m-]
[-p-]
[-s-]
[.]

Edit... OK Cancel

Ok Cancel New Modify Delete Clear All Help

U.S. Patent

Dec. 31, 2002

Sheet 52 of 101

US 6,502,096 B1

FIG. 47

Resource Administration

File Help

Access Level: ☐ Public ☐ IPD only ☐ Team

Resource Title:

Date Added:

Product ID:

Cost:

Price:

Information Category:

Information Filename:

Repository:

Resource Description:

Remarks:

Please enter new data at this time and click on OK.

File Selection Dialog:

Filename: File size:

Current Directory:

Dir List:

- ☐ [-a-]
- ☐ [-c-]
- ☐ [-m-]
- ☐ [-p-]
- ☐ [-s-]
- ☐ [..]

File List:

- clock.exe
- cls.bmp
- cls.ini
- cls1.bmp**
- clsadmin.grp
- clsdemo.ppt
- clsdisk.doc
- clsicons.bmp
- clsxfr.pif

Buttons: Edit... OK Cancel

Main Window Buttons: Ok Cancel New Modify Delete Clear All Help

U.S. Patent

Dec. 31, 2002

Sheet 53 of 101

US 6,502,096 B1

FIG. 48

Resource Administration

File Help

Access Level: ☒ Public ☐ IPD only ☐ Team

Resource Title: CLS - Test resource for training

Date Added: / / Date Updated: / /

Product ID:

Cost:

Price:

Information Category:

Information Filename: \public\tab\test\tst1.txt

Repository: Continuous Learning System

Resource Description:

Remarks:

Media: On Line Notepad McCollum, Tab Cowan, Vickie C:\WINDOWS\CLS1.BM

Format:

Point of Contact:

Alternate Administrator: Bitmap>>

Buttons:

Please enter new data at this time and click on OK.

U.S. Patent

Dec. 31, 2002

Sheet 54 of 101

US 6,502,096 B1

FIG. 49

Resource Administration	
File Help	
Access Level:	<input checked="" type="checkbox"/> Public <input type="checkbox"/> IPD only <input type="checkbox"/> Team
Resource Title:	CLS - Test resource for training
Date Added:	/ /
Product ID:	
Cost:	
Price:	
Information Category:	General
Information Filename:	\public\tab\ttest1.txt
Repository:	Continuous Learning System
Resource Description:	
Remarks:	CLS - TEST RESOURCE FOR TRAINING was successfully added to the CLS database.
<div> <div>Ok</div> <div>Cancel</div> <div>New</div> <div>Modify</div> <div>Delete</div> <div>Clear All</div> <div>Help</div> </div>	

U.S. Patent

Dec. 31, 2002

Sheet 55 of 101

US 6,502,096 B1

FIG. 50

CLS - Locate and View

File Help

File Help

Search

AND-@ OR-/ NOT-!

Title: training

Description:

Date: / / dd/mm/yy

AND ON ON

Ok Cancel Clear

Help

BACK TO PREVIOUS SCREEN

• Close window and return to main

4

• Display all authorized resources by media type.

Type in your search word, phrase or letters. Click on Search button and if there are any resources that match your search entry a list will be displayed or an error will be displayed. Press F1 for help.